

*Full Length Research Paper*

# **Health service in Brazilian private and public hospitals: Budgetary participation, feedback and performance from clinical managers' perception**

**Gisele Cristina dos Santos<sup>1\*</sup>, Carlos Alberto Grespan Bonacim<sup>2</sup> and Luiz Eduardo Gaio<sup>3</sup>**

<sup>1</sup>School of Economics, Business Administration and Accounting, Faculty of Ribeirão Preto, University of Sao Paulo, Brazil.

<sup>2</sup>Department of Accounting, Faculty of Ribeirão Preto School of Economics, University of Sao Paulo, Brazil.

<sup>3</sup>Department of Business Administration, Faculty of Business Administration, Universidade de Campinas, Brazil.

Received 15 July, 2020; Accepted 16 September, 2020

**Budgetary control is pointed as a managerial mechanism suitable for cost reduction and control as well as performance evaluation of institutions. In health organizations, budget is used for funds allocation, coordination, control and communication of the institutions' strategies. In this context, the research will observe the phenomenon of budgetary process from the perspective of Health Service managers of public and private hospitals, called "clinical managers". It aims to check whether there is a relation between the budgetary process characteristics and the budgetary execution performance. Three hypotheses were tested for the analysis of the following budget characteristic, budgetary participation, budgetary feedback and budgetary evaluation. This theoretical research model is going to be analyzed using the structural equation method. The study evaluates if there is a relationship between the budget process characteristic and the budget execution indicator, called meeting the budget. The snowball sample technique was used to sample the research respondents. Thirty three clinical managers were used as sample for the study. The hypotheses were tested using the Smart PIs software. Only Hypothesis 3 was supported statistically, asserting that there is a positive and significant relationship between the budgetary evaluation characteristic and the budget execution performance. These evidences indicate that health service managers recognize the budgetary evaluation as a predominant feature which interferes with the budgetary execution of their field due to the liability on the result of such execution and the possibility of using this metrics in performance evaluation.**

**Key words:** Budgetary control, budget, budgetary evaluation, performance.

## **INTRODUCTION**

The need to increase managerial control in hospitals in response to the pressure for cost reduction and efficiency of hospitals has led to the development of several studies

on health. Examples include those of Abernethy and Stoelwinder (1991), Jacobs (1998), Aidemark (2001) and Lu (2011), which point the budgetary control as a suitable

\*Corresponding author. Email: [gisantos@usp.br](mailto:gisantos@usp.br).

Author(s) agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

managerial mechanism used for the reduction and control of cost and performance evaluation of a hospital. Specifically, in the health sector, budget is a tool that is used for funds allocation, coordination, control and communication of health institutions' strategies, since there is a growing search for cost reduction and efficiency due to the shortage of funds present in this sector (Zucchi et al., 2000).

Hospital institution efficiency is translated in the way the funds available are used to produce treatments and other clinical and non-clinical services. The inappropriate use of these funds prevents efficient service provision, jeopardizes the quality of service and results in higher costs (La Forgia and Couttolenc, 2009). The control environment is the mainstay of the operational support for controlling the activities of any organization, and the healthcare sector is not an exception (Imoniana and Silva, 2019).

In the health sector, the budget process can be influenced by the complexity of the peculiar health service characteristics, such as the difficulty in measuring the service quality because of the intangibility, the heterogeneity of the procedures, the inseparability of the service production and consumption, besides the tension existing between the clinical and administrative areas of the hospital when establishing the goals (Pettersen, 1995; Silva et al., 2009).

In the environment characteristics, the difficulty to measure the agents'<sup>1</sup> effort is greater due to the tension between the clinical and administrative areas. This is because the clinical one, due to the complexity of the service characteristics, will tend to protect itself from the lack of funds. This would induce goals which will bring more funds for the accomplishment of the procedures to care for the patients, while the administrative area will seek the funds allocation that reflects the efficiency for the institution.

Putting forward the above idea, in the scope of the Managerial Control Systems, the budgeting tool is inserted, since it consists of both a management plan, represented by the quantification of the economic and financial objectives to be reached by an organization, expressed via the formalization of projections of revenues and expenditures, and in a process, comprising the relationships between the elements of the control system of an organization, such as performance indicators, incentives and control (Merchant and Manzoni, 1989; Lunkes, 2009).

Thus, in this budget process, besides the managers being inserted into the definition of the budgetary goals which will set this plan of expenditure projections of their sectors/units, they are also part of the process that comprises the relationships of the institution control

system, such as the budget execution performance evaluation, which may be tied to the system of benefits and remuneration. From the studies of Kenis (1979) and Lu (2011), it is intended to study the budget system characteristics – budgetary participation, budgetary feedback and budgetary evaluation – in which the managers of the Health Service, called “clinical managers” in this study, are involved; analyzing which of these characteristics influence the budget execution performances of these managers' unit/area. Therefore, the aim of this study is to analyze the relationship of the budget process characteristics with the effectiveness of budget execution in the view of “clinical managers”.

The structure of this paper comprises the theoretical development on the budget and its applicability in the Health context, the methodology applied and the results evaluated from the use of the Structural Equation Models, followed by the final considerations and references.

## LITERATURE REVIEW

### Managerial control and budget economic approach

In the context of the firm, contractual approach, which has the allocation of decision-making rights as the main idea, is established when the Principal (owner) delegates the power of decision to an agent (manager) who must act on behalf of himself, that is, aligned to his interests. The agency relationship can be defined as an agreement under which the Principal uses another person (agent) to do, on his behalf, a service which implies the delegation of some decision-making power to the agent (Jensen and Meckling, 1976). Since the agent and the principal are maximizers of their utility function, the agent will not always act according to the principal's interest, generating misalignment of interest and agency cost. These costs refer to the agent's monitoring costs to break the information asymmetry, aiming at limiting the agent's irregular activities; cost of generating benefits or outlining the behavior (bonding cost) and the residual losses due to the monitoring inefficiency (Jensen and Meckling, 1976).

The agents participate in a relationship with the firm to increase their utility function, given the remuneration and the benefits received to keep them interested and acting on behalf of the principal; however, the agent's individual behavior enhances moral hazard, since the agent's effort is not observable. The existence of moral hazard problems may have a significant effect on the type of matching between principals and agents that we may observe at equilibrium, compared to the matching that would happen if incentive problems were absent. Under moral hazard, the gains that the participants get when they match are different, and that affects the equilibrium outcome (Macho-Stadler and Pérez-Castrillo, 2020).

Since the agent's effort is not observable, the benefit

<sup>1</sup> The word “agent” refers to the agency relationship, in which the Principal (owner) delegates the agent (manager) the right to act on his behalf. The Principal delegates decisions to the agent, hoping that the agent acts in accordance with his interests (Jensen & Meckling, 1976).

problem arises because the firm will have to design contracts which bind the contract result – the proxy used to measure his effort – with a reward system so that the agent reveals his information on the non-observable behavior (Gibbons and Roberts, 2013). In this context, the Controllershship deals with the management artifacts - such as the budget and its elaboration process, which will originate the relevant information for the performance and benefits measurement system, being a part of the organization control system. The budget refers to a plan the organization uses to obtain and consume financial and non-financial resources during a period of time (Lu, 2011). It can be used as a management mechanism, as a permit, so that the managers spend a certain amount of funds as a way of planning and control, as a tool to influence the manager's behavior and financially motivate his decision-making practices and as a manager's performance judgement and remuneration calculation (Macinati, 2010). The budget preparation process, in many organizations, is coordinated by the controller, or a budget committee which addresses the high management. This committee is responsible for issuing the policies and guidelines which regulate the budget preparation and which will have the company strategic planning as basis (Anthony and Govindarajan, 2008).

These guidelines will be distributed to all of those who are involved in the process, usually to the managers of the responsibility centers, so that, along with their staff, they develop the budget of the unit/division which is under their responsibility (Anthony and Govindarajan, 2008). In this budget interaction process which involves funds distribution, goal establishment, performance and motivation, behavioral aspects of the budget must be considered (Atkinson et al., 2011). The participation of the agents involved in budget planning is a relevant aspect of this process, and the budgeting goals may be related to benefits and compensation systems, which can influence the agents' behavior (Atkinson et al., 2011).

In the Economy view, budget is seen as a component of the Managerial Accounting system, and it is important in the coordination of activities and benefits within the organization (Covaleski et al., 2007). The budget is analyzed as a decision-making facilitator due to its role in the performance and benefit evaluation system, besides promoting a communication process between the managers and employees, anticipating decisions by facts which are already known by the employees and also by the participation in the budget process (Covaleski et al., 2007). Thus, the study focus in this perspective is in the budget arrangements which maximize the Principal's and agents' interests, investigating the use of the budget practices (such as the setting of budget goals, participative budget, reward system based on budget), besides analyzing how the choices of budgeting practices produce outcomes, such as the individual well-being, the performance of the organization and budgetary slack (Covaleski et al., 2007).

## Budget process and the Health Service

Studies in the field of health portray the budgetary control as managerial mechanism suitable both for the reduction, and the cost control in the clinical area, besides being able to be used in the evaluation processes and performance improvement (Abernethy and Stoelwinder, 1991; Jacobs, 1998; Aidemark, 2001; Lu, 2011).

The budget refers to a plan the organization uses to obtain and consume financial and non-financial resources during a period of time (Lu, 2011). It can be used as a management mechanism, as a permit to enable the managers spend a certain amount of funds, for planning and control, as a tool to influence the manager's behavior and financially motivate his decision-making practices and as a manager's performance judgement and remuneration calculation (Macinati, 2010).

King et al. (2010) point that the budget is considered one of the most important managerial control system in the organizations, which keeps on receiving significant attention in literature and is applied in several business types, since there is not only one budget type which is suitable for all the organizations, but it can be contingent on unique features of each one of them. The managerial control systems, through their tools, such as budget, must be designed and developed considering the organizational context of both the institutions and the professional involved in this process, mainly the Health sector, because, according to Pizzini (2006), the hospital constitutes complex institutions whose clinical and patient care practices have high uncertainty level for the task.

The Health organizations have started to adopt suitable management tools so that the managers could carry out the management of these scarce funds, aiming the continuous search for efficiency and effectiveness of practices (Bonacim and Araujo, 2010; Dallora and Foster, 2008). The managerial efficiency and effectiveness surely involve the cost matter, since the hospital excellence requires efficiency in cost associated with quality of the service granted and the consequent satisfaction of the patient (Bonacim and Araujo, 2010). The system of determination and cost control takes an important role in these institutions, but in the Health scope, the cost management has quite unique characteristics, made of different types of procedures, practices and numberless projects carried out within a single organization, making the cost determination a challenging task (Almeida et al., 2009).

The budget was also pointed as a tool for performance improvement in hospitals since it would perfect the processes, promote cost efficiency without sacrificing the quality of the institution service and the funds maximization, besides facilitating the decision-making process, according to Abernethy and Guthrie's (1994) previous studies, corroborated by Hammad et al. (2010).

Kenis (1979) examined some effects of the budgeting goal characteristics, such as feedback, clearness,

difficulty and the evaluation of the attitudes related to work development – satisfaction, involvement and tension, in the attitudes related to the budget. According to this paper, the budget characteristics have an important role in the improvement of the managers attitudes towards the budgets, since the results revealed that the budgetary participation tends to raise the managers' budgetary performance and that there is positive relationship between the budget, motivation and performance characteristics.

Li et al. (2010) also examined the effects of budgetary goal characteristics, budget goal clarity and budget goal difficulty, on managerial attitudes and performance in the budgeting process. Lu's (2011) studies had Kenis's (1979) research as basis, however it was applied to budget managers of public hospitals in China, and the unit service managers as clinical departments, Nursing, auxiliary and administrative departments, seeking to investigate the budgetary perceptions (attitude, tendency to budgetary slack and motivation) of the members and the influence of these perceptions on the hospital performance.

Lu (2011) sought to integrate the budgetary perceptions as intermediate variables between the characteristics of the budgetary control system (budgetary participation, feedback, budgetary goal evaluation, clearness and budgetary goal difficulty) and the performance, besides helping to look into those issues in public hospitals.

Regarding the goal clearness and the budgetary participations, Kenis (1979) identified that they are positively correlated and that the difficulty level of the budgetary goal demonstrated adverse effects in attitude and budgetary performance. The budgetary participation is defined as the extension in which the managers participate in the budget preparation and influence the budgetary goals under the responsibility of their centers. The budgetary feedback is the level in which the budgetary goals have been reached (Kenis, 1979).

Macinati et al. (2016) studied the effects of budgetary participation on medical manager job performance mediated by managerial job engagement and managerial self-efficacy. The relationship between budgetary participation and job performance is fully mediated by the two mediating variables which act jointly in the participation-job performance link. The effective budget, according to Lu (2011), would motivate the members to work in pursuit of the organization objectives, involving the participation of the members (managers and subordinates) in the budget preparation process, since the managers would obtain detailed information of each department's daily operations.

The Health Service managers' participation would be essential, since these professionals make up an important decision-making level in funds allocation, when they decide on the priorities of their services and which funds will be used, besides being pointed by the World Health Organization as the ones with the greatest

potential in the Health area to ensure profitable assistance (Francisco and Castilho, 2002; De Oliveira et al., 2014). These Health Service managers are defined in this study as "clinical managers", to whom a decision-making level regarding the setting of budgetary goals is assigned (Macinati and Rizzo, 2014). According to these authors, these doctors' ("clinical managers") decision-making process is a key factor in the matter of funds consumption of the hospitals and their involvement in this process is seen as critical for the efficiency and performance of the institution.

Due to the evidences presented, the budgetary participation of health service managers of public and private hospitals can influence the definition of budgetary goals, whose reflex will be the most suitable budgetary execution, since the budget will be legitimized by these managers involved in the process. Thus, the following hypothesis is set:

**H1:** When the Health Service managers' participation in the budget process is high, the Budget Execution tends to be greater- Meeting the budget.

Budgetary feedback is the level in which the budgetary goals have been reached (Kenis, 1979). According to Lu (2011), budgetary feedback refers to the level a department manager receives information on the accomplishment of budgetary goals, helping the managers, through the analysis of the information received about the budgetary execution, to check and adjust the expected performance, and also help setting the future budget. This study's results demonstrated that when the budgetary feedback and participation are high, the managers' motivation and attitude will be high and the tendency to budget slack will be low. When the level of budgetary motivation and attitude are high, the performance will be high as well.

Formally, there is the following hypothesis:

**H2:** When the feedback received by the Health Service managers in the budget process is high, the Budget Execution Indicator tends to be greater - *Meeting the budget*.

As defined by Kenis (1979), budgetary evaluation refers to the extension to which the budgetary variations are reported to those responsible for individual departments and used in performance evaluation.

The comparison of the differences between actual values and those forecasted in the budget and the analysis of the cause of such differences represent the nature of budgetary evaluation. When the budgetary evaluation is relevant for the organization, the managers of the departments are more encouraged to have positive attitudes regarding budget execution since they will understand the strategy, agree with the budgetary control system and be able to mitigate negative impacts caused by budget slack (Lu, 2011). It is expected, therefore, that

budgetary evaluation provides a more accurate budgetary execution. Thus, the third hypothesis is proposed:

**H3:** When the Evaluation of the budget variations reported to the Health Service managers in the budget process is high, the Budget Execution tends to be greater - Meeting the budget.

The Budget Execution Indicator - Meeting the Budget, defined as budgetary performance measure, is formed by two questions whose objective is to measure how suitable the budget execution was in terms of meeting the budget goals and remark of the fulfillment the budget percentage (Mucci et al., 2016), because, if the goals were met, the fulfillment percentage would reflect this reach. The remark premise by the manager of the budget fulfillment percentage is in the budget emphasis that is, reaching the budget set for the period, without remains or surpluses (Buzzi et al., 2014). The performance indicators reflect the achievement level of budgetary goals which are part of the performance measurement system. The literature presents several indicators dealt with in the studies.

According to Lu (2011), the basic performance measure of the institution would be detected by the "achievement" rate or the range of the budgetary goal, among others, such as doctor's prescription, medical gross margin, and hospital occupancy rate. Macinati and Rizzo (2014) used, in their study, the budgetary performance measure as a percentage of attainment of budgetary goals. Abernethy and Stoelwinder (1991), in a study applied to non-profit hospitals, used indicators such as patient satisfaction, quality of the care with the patient, ability to attract funds, satisfaction of the unit staff and the level of meeting the budget, which were weighted and made up the average result for the performance measure. Taking over the expression *Meeting the budget* of Abernethy and Stoelwinder's (1991) study and Macinati and Rizzo's (2014) definition of budgetary performance, the budgetary performance measure is defined for this research, and it is called Budgetary Execution Indicator, mentioned in the hypotheses presented.

## METHODOLOGY

### Research design

From the theoretical framework mainly on the studies of Kenis (1979) and Lu (2011), the theoretical research model, structured by four constructs: Budgetary Participation, Budgetary Feedback, Budgetary Evaluation and Budgetary Execution Indicator - Meeting the Budget - was built. The four constructs analyzed will be measured by indicators – questions of the data collection instrument developed – since the questionnaire is a category of the survey data collection method to obtain primary data, whose development presupposes a series of activities which must be considered (Hair et al., 2005).

The Budgetary Execution Indicator - Meeting the Budget, defined

as budgetary performance measure, is formed by two questions whose objective is to measure how suitable the budgetary execution was in terms of meeting the budgetary goals and remark of the fulfillment the budget percentage (Mucci et al., 2016) because, if the goals were met, the fulfillment percentage would reflect this reach.

The organizations use budget for the funds allocation to their departments and divisions (Church et al., 2018). The budgeting process suggests that the budget reflect the strategy of the institution, being able to indicate the goals of the organization, directing the agents' behavior and offering mechanisms for these agents' performance evaluation, thus, this device translates the organization strategies in quantitative, qualitative metrics and it is relevant for both the planning of future actions, and the control of current actions (Cardoso et al., 2007). The endogenous design choices, in turn, determine several functional attributes of the budgetary system, including the accounting metrics used and the managers' discretion in the use of funds (Church et al., 2018). The hospital institutions, object of this study, are highly complex institutions, formed by several departments of high specificity and qualification, with strongly distinct features which need to be integrated in order to provide the most suitable treatment to their users. Such complexity leads to difficulties in management and challenges in the adoption of managerial accounting devices in hospital institutions comparatively larger than those faced by other kinds of enterprise (Abernethy et al., 2007).

The design of the budgetary system depends on specific organizational contexts. According to Pizzini (2006), hospitals are complex organizations whose clinical activities and care with the patient have high uncertainty level task. Studies on budget slack published in international journals consider some variables, among them, task uncertainty, budgetary emphasis, complexity level and process technology. In Brazil, the studies focused on the contingency approach to discuss how uncertainty, strategy and technology influence the use of the device and, consequently, its execution (Mucci et al., 2016).

In this context in which the hospitals are inserted, these variables can influence the use and the execution of the institution budget; however, in the development of the Budgetary Execution Indicator - meeting the budget – constructs, the assumption of the remark by the manager of the percentage of budget fulfillment is in the budgetary emphasis, that is, in meeting the budget set for the period (Buzzi et al., 2014), without surpluses or remains. Thus, it is understood that the objective of the budgetary execution is to meet the budget planned. In case there are variations, differences between planned and performed, there is a sign that the operations did not happen as planned. These variations are part of a control system to monitor the results (Atkinson et al., 2011).

### Target population and sampling

The target population included clinical managers of private and public hospitals in Brazil who were involved in the budgeting process and whom a decision-making level regarding the setting of budgetary goals is assigned. In the research, the sample was non-probabilistic for convenience, like snowball sampling, in which the researcher makes the first contact with a small group of people who are relevant for the research and who will indicate possible respondents and, from these new respondents, more indications will take place until the number desired for the sample is reached (Hair et al., 2005).

### Data collection methods and procedures

The development of the data collection instrument was based on

the previous studies of Swieringa and Moncur (1975), Kenis (1979) and Lu (2011). Since these questions arose from data collection instruments applied in English language studies, the translation and validation of this instrument for subsequent application, applying the cross-cultural adaptation proposed by Beaton et al. (2000) were necessary. After this validation, the instrument was finalized, and it consists of 29 closed questions, measured in five-point Likert scale, and, in the end, nine personal information questions for classifying the respondents were included, according to Table 1.

The pre-test was carried out with a five-Health-Service-manager sample, who had similar characteristics to those aimed by the sample longed, having no amendment indicated. There was the researcher's contact with a small group of professional and teaching staff of the Health area, who first indicated the managers of the Health Service of Public and Private hospitals. From this first meeting, the return of emails containing new managers' indication was set and 33 surveys were answered and validated. Regarding the data collection, the Project was approved by the Ethics Committee in Research of the University of São Paulo, according to the CAAE protocol: 13520813.3.0000.5407. The Structural Equation Modeling technique based on components, Partial Least Squares Path Modeling – PLS-PM, was used in the study, since it favors the studies with small samples, presenting high level of statistical power (Hair et al., 2012).

## RESULTS AND DISCUSSION

By the descriptive statistics regarding the clinical managers' profile, it is highlighted that the managers of private organizations are younger (age range from 31 to 40 years old) compared to those of public ones (41 to 50 years old); however, they work in the same position for about 1 to 5 years, predominantly, in both organizations. These managers have up to 50 subordinates allocated under their responsibility. In the public sector, this index is more relevant (64%); while in private institutions, it was more balanced (53% up to 50 subordinates and 47% more than 50 subordinates).

It is highlighted that the professional experience of these managers ranges predominantly from 1 to 10 years, but we observe that, in public hospitals, there is a concentration of managers (36%) distributed in ranges above 21 years and 30 years. In private hospitals, however, only 10% of them are in the 21 to 30 year-range. From the theoretical model proposed, the result analysis follows two steps: analysis of both the measurement and structural models. The measurement model refers to the formation of constructs (latent variable) by the indicators (variables measured by the survey) representing how these variables measured gather to represent the constructs, while the structural model aims to statistically discuss the relationships between the constructs, that is, how they are associated among themselves (Hair et al., 2009).

In the measurement model, it was analyzed whether the indicators (questions of each construct) measure the Budgetary Participation, Budgetary Feedback and Budgetary Evaluation constructs; while the structural model checks the validity of the presumed theoretical relationships, that is, how well the empirical data give

support to the theoretical model. The measurement and structural models were validated in accordance with the statistical criteria set for the Structural Equation Modeling, and the final model is presented in Figure 1.

The adjusted final model is presented with the t-value statistics, the structural coefficients and the p-values, in brackets, and is presented in Table 2. It is observed, in Table 2, that for the Student's T-statistics, the t-value above 1.96 is significant for the 5% reliability level adopted in this study. If the p-value is greater than 5%, the hypothesis is rejected, otherwise, it is accepted. Regarding the relationship of the Budgetary Participation construct and the Budget Execution Indicator (Meeting the Budget), the structural coefficient of 0.128 indicated that its effect on the Budget Execution Indicator (Meeting the Budget) is positive, but weak in comparison to the other constructs, since it explains just 12.8% of the variation of the Meeting the Budget indicator in relation to 1% of variation in the Budgetary participation.

Regarding the significance of the relationship between these constructs, H1 hypothesis is not sustained. This ascertainment does not corroborate with the findings of Kenis (1979), because the relationship was not only positive, but also significant to explain the budgetary performance of the area/unit of the managers researched, revealing that the budgetary participation tends to improve the managers' budgetary performance. On the other hand, in Lu (2011) study, the budgetary participation is also related positively to the performance, but it is mediated by variables which represent budget perceptions. The structural coefficient of the Budgetary Feedback and Budget Execution Indicator (Meeting the Budget) relationship was 0.274, indicating a positive effect, and being responsible for explaining 27.4% of the variation of the Meeting the Budget indicator in relation to 1% of variation in the Budgetary Feedback.

In Kenis (1979) study, the Budgetary Feedback presented a positive, but not significant relationship to explain the Budget Execution performance, as observed in the research. According to the author, the results suggest that the feedback on the level of meeting the goal was inefficient in promoting performance.

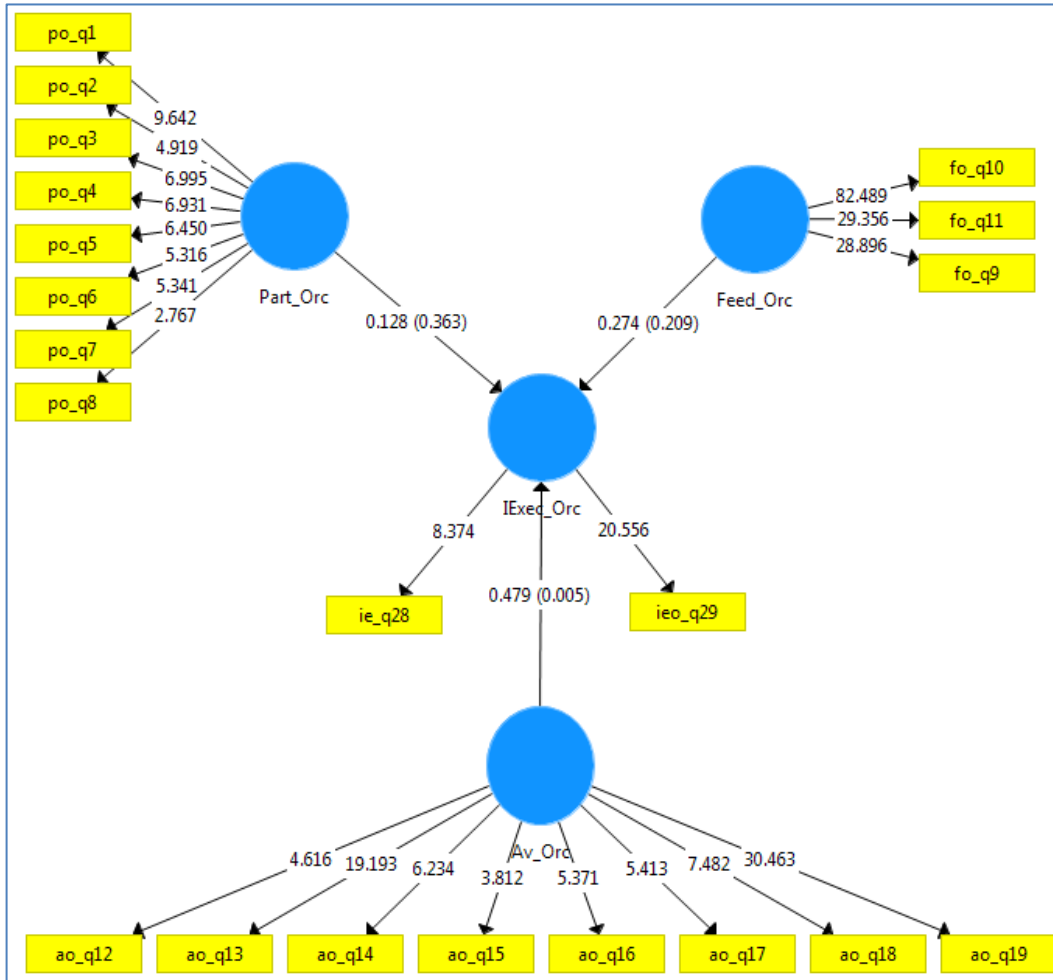
According to Lu (2011), the Budgetary Feedback information has power on supervision, performance measurement and control, but such ascertainment was not obtained in the study. Yuen (2004) points that the central idea is that the Budgetary Feedback in the performance evaluation, when carried out in constructive, objective and fair manner, is essential for setting up the budgetary goals during the budget process, reducing the possibility of budgetary slack as well. The Budgetary Evaluation and Budget Execution Indicator (Meeting the Budget) relationship presented the structural coefficient of 0.479, the one which has the greater effect, also positive, in comparison to the Budgetary Participation and the Budgetary Feedback, explaining 47.9% of the variation of the Meeting the Budget indicator in relation to 1% variation in the Budgetary Evaluation.

**Table 1.** Constructs, indicators and questions of the collection instrument.

Construct	Indicators	Questions
Budgetary participation	PO_q1	I am involved in setting all portions of my budget.
	PO_q2	My budget is not final until I am satisfied with it.
	PO_q3	My opinion is an important factor in setting my budget.
	PO_q4	I work with my subordinates in preparing the budget for my unit.
	PO_q5	I am consulted about special factors I would like to have included in the budget being prepared.
	PO_q6	New budget include changes I have suggested.
	PO_q7	I am allowed a high degree of influence in the determination of my budget goals.
	PO_q8	I really have little voice in the formulation of my budget goals. (reverse item)
Budgetary feedback	FO_q9	I receive a considerable amount of feedback about my achievement concerning my budget goals.
	FO_q10	I am provided with a great deal of feedback and guidance about my budget variances.
	FO_q11	My boss lets me know how well I am doing in terms of achieving my budget goals.
Budgetary evaluation	AO_q12	My superior demands that I am responsible for budget gap.
	AO_q13	My superior has asked me to keep up with schedule as to fulfill budget objectives.
	AO_q14	My superior would consider my performance unsatisfactory when a big budget gap occurs in my department.
	AO_q15	My superior would be discontent with my budget gap in my department.
	AO_q16	I am required to prepare reports comparing actual results with budget.
	AO_q17	My superior calls me in to discuss variations from the budget.
	AO_q18	I am required to trace the cause of budget variances to groups or individuals within my unit.
Indicator of budget execution	AO_q19	I am required to report actions I take to correct causes of budget variances.
	IE_q28	Observing the achievement of budgetary goals for 2014, my unit/area executed the budget appropriately.
	IE_q29	Indicate the percentage range of budget achievement of the unit/area under your responsibility. Such execution percentage refers to the amount estimated for 2014 in relation to the budget actually performed for the same year. In case it surpassed the amount estimated, consider the percentage higher than 100%.

This ascertainment goes against Kenis (1979) results, in which the relationship between these variables was weak; but in the study developed by Elhamma (2015), the results corroborate the finding of hypothesis 3, in which the Budgetary evaluation presented a significant and positive relationship to explain performance. Regarding the statistical significance of the relationship between

these constructs, the values presented are considered significant, supporting hypothesis 3. Thus, the only statistically significant relationship of the structural model proposed was the one of the Budgetary Evaluation and the Budget Execution Indicator (Meeting the Budget) construct, explaining approximately 50% of the variation in the Budget Execution Indicator– performance measure



**Figure 1.** Final adjusted model - analysis of the structural model by bootstrapping. PO, Budgetary Participation; FO, Budgetary Feedback; AO, Budgetary Evaluation; IE, Budget Execution Indicator – Meeting the Budget.

**Table 2.** Structural coefficients and t- and p- value statistics.

	<b>Structural coefficient</b>	<b>t-value</b>	<b>P- value</b>
AO-> IE	0.479	2.807	0.005**
FO-> IE	0.274	1.256	0.215
PO-> IE	0.128	0.911	0.341

and still interacting positively.

This result attests that the Health Service managers, mainly the ones in the Nursing Service, recognize the Budgetary Evaluation as a predominant characteristic which interferes in the budget execution of the area/sector under their responsibility, due to the liability on the results presented for producing scarce funds and for being inserted in this process, many times without the necessary set of knowledge, abilities and skills for such activity. To better elucidate the analysis of the Budgetary

Evaluation characteristic, it was interesting to check if there were differences in the perception of the Health Service managers regarding the funds Budget Execution, whether they were public or private.

In order to do so, a non-parametric test called Mann-Whitney was performed, comparing the results of the questions of the Budget Execution Indicator of the managers who work in institutions in which the funding of the service was predominantly public or private. The result of this test generated a 0.701 p-value statistics,



above the 5% reliability level, claiming the hypothesis that there is no difference in the perception of both Health Service managers in relation to the Budget Execution Indicator, which demonstrates that the funding type does not interfere with the form of budget execution of these funds by the managers of this study.

### Final considerations

The present research sought to investigate the relationship of the budgetary process characteristics, under the perception of health service managers of both public and private hospitals, on the performance of budgetary execution, based on Kenis' (1979) and Lu's (2011) studies. The hypotheses elaborated based on covered literature culminated in the theoretical model developed, in which it was sought to statistically test the relationship of the constructs which comprehend these characteristics with the budget execution performance measured by the Budget Execution indicator called Meeting the Budget. By the result analysis, it was determined that there is positive relationship between the Budgetary Participation and Budgetary Feedback and the Budgetary Execution Indicator, despite the fact they did not present statistical significance, causing the H1 and H2 hypotheses to be rejected.

This ascertainment has not corroborated with the findings in Kenis (1979) study, since the relationship was not only positive, but also significant to explain the budgetary performance of the area/unit of the researched managers, revealing that budgetary participation tends to improve the managers' budgetary performance. On the other hand, in Lu (2011) the budgetary participation was also positively related to performance, but it was intermediated by variables which represent budgetary perceptions.

Macinati and Rizzo (2014) argue that the introduction and the use of techniques and tools of the business environment in the Health care sector can improve these managers' decision-making process if the participation in setting budgetary goals is properly stimulated.

According to the few studies carried out in Brazil, in the Healthcare sector, this participation is not so substantial because it depends on education and training on costs, change on the liability form and autonomy within the hospitals since their activities focus on patient care.

Regarding the Budgetary Evaluation construct, it was determined that there is a positive and statistically significant relationship between the constructs, sustaining the H3 hypothesis. Thus, the Budgetary Evaluation, a budgetary characteristic, explains 47.9% of the variation of the Budgetary Execution Indicator (Meeting the Budget) in the research model proposed for this sample of Health Service Managers. The confirmation of this hypothesis was not corroborated by Kenis' (1979) study, but it was a relevant ascertainment for this environment

of the Health sector, regarding the sample studied; since, despite having Budgetary Participation and Budgetary Feedback, these managers guide themselves by the Budgetary Evaluation, that is, how much the budget variations are reported to the responsible ones and used for purposes of liability of these managers. When it comes to a complex service with unique characteristics, the Health Service managers make decisions to allocate scarce funds, whose consequences of such allocation impact directly the assistance given to the patient, since they tend to guide themselves to a short-term decision.

This decision may interfere directly in the budget execution performance, which is the reason why the managers' care about the outcomes of a not appropriate execution, since they are responsible for the result generated.

### Contributions

The results obtained also present contributions to the Management Accounting literature, regarding the budget and the interaction of this tool with the agents involved who are inserted in complex environments, as the health organizations are. In this environment, the services have peculiar characteristics, highlighting that the participation and feedback received from the budgetary information are relevant so that the budget is properly executed, but what matters is the budgetary evaluation, since these goals can be related to incentive and compensation systems, besides being liable for the results of this budgetary execution. It is highlighted that when the introduction of these mechanisms as something which will improve performance, process refinement, cost control, efficiency in funds allocation, performance evaluation and the kind of institution, the characteristics of the service provided and how the relationships between the agents and the principal in this process take place cannot be ignored.

### Limitations and future research

The findings of this research are limited to the sample studied, since a non-probabilistic sample which interferes in the power of result generalization was used, considering the origin of the collection instrument and the cultural aspect which can interfere in the translation and validation process as limitation.

Future researches can be developed, considering the expansion of the health service manager sample to seek greater generalization power of the proposed model, the conducting of case studies to deepen analysis and promote the data triangulation, as well as add variables that deal with remuneration and incentive system, which can improve this analysis of the adoption of Managerial Control devices in Healthcare sector and how they are

related to the budgetary execution performance.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

## REFERENCES

- Abernethy M, Chua WF, Grafton J, Mahama H (2007). Accounting and Control in Health Care: Behavioural, Organisational, Sociological and Critical Perspectives, w: eds. CS Chapman, AG Hopwood, MD Shields, Handbook of Management Accounting Research.
- Abernethy M, Guthrie CH (1994). An empirical assessment of the "fit" between strategy and management information system design. *Accounting and Finance* 34(2):49-66.
- Abernethy M, Stoelwinder JU (1991). Budget use, task uncertainty, system goal orientation and subunit performance: a test of the 'fit' hypothesis in not-for-profit hospitals. *Accounting, Organizations and Society* 16(2):105-120.
- Aidemark LG (2001). Managed health care perspectives: a study of management accounting reforms on managing financial difficulties in a healthcare organization. *European Accounting Review* 3(10):545-560.
- Almeida AG, Borba JA, Flores LCS (2009). A utilização das informações de custos na gestão da saúde pública: um estudo preliminar em secretarias municipais de saúde do estado de Santa Catarina. *Revista de Administração Pública* 43(3):579-607.
- Anthony RN, Govindarajan V (2008). *Sistemas de Controle Gerencial*. São Paulo: McGraw-Hill.
- Atkinson AA, Kaplan RS, Matsumura EM, Young SM (2011). *Contabilidade Gerencial*. São Paulo: Atlas.
- Beaton DE, Bombardier C, Guillemin F, Ferraz MB (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine* 25(24):3186-3191.
- Bonacim CAG, Araújo AMP (2010). Gestão de custos aplicada a hospitais universitários públicos: a experiência do Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto da USP. *Revista de Administração Pública* 44(4):903-931.
- Buzzi DM, dos Santos V, Beuren IM, Faveri DB (2014). Relação da folga orçamentária com participação e ênfase no orçamento e assimetria da informação. *Revista Universo Contábil* 10(1):06-27.
- Cardoso LC, Mário PC, Aquino ACB (2007). *Contabilidade Gerencial: mensuração, monitoramento e incentivos*. Editora Atlas, São Paulo-SP.
- Church B, Kuang Xi, Liu Y (2018). The effects of measurement basis and slack benefits on honesty in budget reporting. *Accounting, Organizations and Society* 72(C):74-84.
- Covaleski M, Evans JH, Luft J, Shields MD (2007). Budgeting research: three theoretical perspectives and criteria for selective integration. *Handbooks of Management Accounting Research* 2:587-624.
- Dallora MEL, Forster AC (2008). A importância da gestão de custos em hospitais de ensino-considerações teóricas. *Medicina (Ribeirão Preto)* 41(2):135-142.
- de Oliveira WT, Haddad MDCL, Vannuchi MTO, Rodrigues AVD, Pissinati PDSC (2014). Capacitação de enfermeiros de um Hospital Universitário público na gestão de custo. *Revista de Enfermagem da UFSM* 4(3):566-574.
- Elhamma A (2015). The relationship between budgetary evaluation, firm size and performance. *Journal of Management Development* 34(8):973-986.
- Francisco IMF, Castilho V (2002). A enfermagem e o gerenciamento de custos. *Revista da Escola de Enfermagem da USP* 36(3):240-244.
- Gibbons R, Roberts J (2013). Economic theories of incentives in organizations. *Handbook of Organizational Economics* pp. 56-99.
- Hair J, Babin B, Money A, Samouel P (2005). *Fundamentos de métodos de pesquisa em administração*. Bookman Companhia Ed.
- Hair J, Babin B, Money A, Samouel P (2009). *Fundamentos de métodos de pesquisa em administração*. Bookman Companhia Ed.. Análise Multivariada de dados. Porto Alegre: Bookman.
- Hair JF, Sarstedt M, Ringle CM, Mena JA (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science* 40(3):414-433.
- Hammad SA, Jusoh R, Oon EY (2010). Management accounting system for hospitals: a research framework. *Industrial Management and Data Systems* 110(5):762-784.
- Imoniana JO, Silva WL (2019). Understanding internal control environment in view of curbing fraud in public healthcare unit. *African Journal of Business Management* 13(18):602-612.
- Jacobs K (1998). Costing health care: a study of the introduction of cost and budget reports into a GP association. *Management Accounting Research* 9(1):55-70.
- Jensen MC, Meckling WH (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3(4):305-360.
- Kenis I (1979). Effects of Budgetary Goal Characteristics on Managerial Attitudes and Performance. *The Accounting Review* 54(4):707-721.
- King R, Clarkson PM, Wallace S (2010). Budgeting practices and performance in small healthcare businesses. *Management Accounting Research* 21(1):40-55.
- LA Forgia GM, Couttolenc BF (2009). *Desempenho hospitalar no Brasil: em busca da excelência*, São Paulo: Singular.
- Li W, Nan X, Mo Z (2010). Effects of budgetary goal characteristics on managerial attitudes and performance. *International Conference on Management and Service Science*. pp. 1-5.
- Lu CT (2011). Relationships among budgeting control system, budgetary perceptions, and performance: A study of public hospitals. *African Journal of Business Management* 5(15):6261-6270.
- Lunkes J R (2009). *Manual de orçamento*, São Paulo: Atlas.
- Macho-Stadler I, Perez-Castrillo D (2020). Agency Theory meets matching theory. In *Series*, pp.1-33.
- Macinati MS (2010). NPM Reforms And The Perception Of Budget By Hospital Clinicians: Lessons From Two Case-Studies. *Financial Accountability and Management* 26(4):422-442.
- Macinati MS, Bozzi S, Rizzo MG (2016). Budgetary participation and performance: The mediating effects of medical managers' job engagement and self-efficacy. *Health Policy* 120:1017-1028.
- Macinati MS, Rizzo MG (2014). Budget goal commitment, clinical managers' use of budget information and performance. *Health Policy* 117:228-238.
- Merchant KA, Manzoni JF (1989). The achievability of budget targets in profit centers: A field study. In *Readings in Accounting for Management Control* pp. 496-520.
- Mucci DM, Frezatti F, Dieng M (2016). As múltiplas funções do orçamento empresarial. *RAC-Revista de Administração Contemporânea* 20(3):283-304.
- Pettersen IJ (1995). Budgetary control of hospitals-Ritual rhetorics and rationalized myths? *Financial Accountability and Management* 11:207-207.
- Pizzini MJ (2006). The relation between cost-system design, managers' evaluations of the relevance and usefulness of cost data, and financial performance: an empirical study of US hospitals. *Accounting, Organizations and Society* 31(2):179-210.
- Silva MT, Lancman S, do Carmo Alonso CM (2009). Conseqüências da intangibilidade na gestão dos novos serviços de saúde mental. *Revista de Saúde Pública* 43(suppl. 1):36-42.
- Swieringa RJ, Moncur RH (1975). Some effects of participative budgeting on managerial behavior. *National Association of Accountants*.
- Yuen DCY (2004). Goal Characteristics, communication and reward systems, and managerial propensity to create budgetary slack. *Managerial Auditing Journal* 19(4):517-532.
- Zucchi P, Del Nero C, Malik AM (2000). Gastos em saúde: os fatores que agem na demanda e na oferta dos serviços de saúde. *Saúde e Sociedade* 9(1-2):127-150.