

The Use it or Lose it Phenomenon in the Budget Execution of Federal Universities and the enrollment of the payable remainders

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Abstract

Objective: To verify the influence of the "use it or lose it" phenomenon in the process of budget execution of Brazilian Federal Universities, from the analysis of the relationship between the pressure for spending in the budget execution of the 4th quarter of the fiscal year and the proportion of canceled and reinscribed unpaid commitments in these institutions.

Method: The 63 Brazilian Federal Universities were studied, in the period from 2015 to 2019. The variable "Pressure by spending in the 4th quarter" (PO) was calculated from the proportion between the expenses committed in the last three months of the year in relation to the total discretionary budget committed. Other variables of the research were "Unpaid Commitments" - of the total committed in the 4th quarter (RAP), "Total Discretionary Appropriation" (DOT) and "Equivalent Undergraduate Students" (AGE).

Results/Discussion: The results of the research indicate that 87% of the federal universities presented pressure for spending in the last quarter of the financial year. It was also evidenced that the budget resource is committed under a "use it or lose it" atmosphere, given the impossibility of using the budget allocation in the following fiscal year.

Contributions: The research findings confirm the positive influence of spending pressure on the amount of unpaid commitments canceled or reinscribed in the subsequent fiscal year, making a practical contribution to understanding the difficulty of planning inherent in what is executed under an atmosphere of "pressure". The identification of this influence is important in explaining the significant growth in the number of unpaid commitments, as well as providing insight into how this problem can be mitigated.

Keywords: Budget Execution; Pressure to Spend; Unpaid Commitments.

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Introduction

The budget process in Brazil is governed by basic principles that guide the preparation, execution and control of the public budget. One of these principles is budgetary annuality, which sets out the periodicity for the allocation of resources approved in the Annual Budget Law (LOA) until the end of the financial year, which coincides with the calendar year, as provided for in art. 34 of Law 4,320 (1964).

Unlike what happens in some countries, such as Uruguay, which adopts a five-year periodicity for the budget, maintaining the faculty of annual review by Congress, and the United States (USA), which adopts a multi-annual budget for investments and large purchases, in Brazil there is no budget loading for the subsequent year, called carry over, is allowed. Carry over is the possibility of later using the balance of an endowment authorized by law, but not used in a financial year (Fortis & Gasparini, 2017; Aquino & Azevedo, 2017).

For Di Francesco and Alford (2016), this inflexibility of budgetary rules makes organization management difficult, which can harm multi-annual plans and encourage dysfunctional behaviors on the part of government agents, such as the “rush” to use resources at the end of the financial year.

The impossibility of using the resources established in the budget for a period longer than the financial year, through the use of instruments such as carry over, can make managers prone to executing the budget in an ineffective and indiscriminate way, in order to avoid the return of resources. This practice, often related to budget execution in several countries, is translated by the expression “use it or lose it” (Alves, 2011; Liebman & Mahoney, 2013; Douglas & Franklin, 2006), which, in turn, corroborates as an incentive to extend the period of use of resources beyond the financial year, through the mechanism known as “unpaid commitments” (Douglas & Franklin, 2006; Aquino & Azevedo, 2017; Fortis & Gasparini, 2017).

In this sense, the registration of expenses in “unpaid commitments” is an artifice used by managers to take advantage of the entire budget, which protects them from possible budgetary and financial restrictions established by the government, as in cases of contingency (Galhardo et al., 2013).

The practice of contingency was established by the Fiscal Responsibility Law (Complementary Law 101, 2000) to contain expenses, and restricts the execution of the

budget by limiting commitment and financial movement (Abraham, 2016; Lima & Diniz, 2016). This conservative posture of the government ends up causing the budget to be released late and a greater concentration of the number of commitments issued at the end of the year, reflecting in an increase in commitments registered in outstanding payments, which impairs the management of budgetary balance (Giacomini, 2010; Alves, 2011 Aquino & Azevedo, 2017).

Considering the discussions on budget execution relevant, given their specificities in the Brazilian context, and the challenge faced by the public administration to contain the expressive increase in the unpaid commitments, this research intends to investigate whether there is an influence of the “use it or lose it” phenomenon in the budget execution process of Brazilian Federal Universities, based on the analysis of the relationship between the pressure for spending in the budget execution of the 4th quarter of the financial year, and the proportion of canceled and reinstated outstanding payables. In this way, the following research question was established: what is the relationship between the pressure for spending in budget execution and the proportion of canceled and reinstated remaining payables in Brazilian Federal Universities?

From this perspective, the research aims to help understand the pressures and incentives behind public spending in Brazilian Federal Universities, motivated by the “use it or lose it” phenomenon imbued in the budget process, bringing to the discussion this relationship with the expressive increase of the unpaid commitments at the federal level and with the indiscriminate use of resources, which can occur in the last quarter of the fiscal year, as evidenced in the studies by Lee and Kendal (2018).

2. Literature Review

2.1 The Brazilian Budget Process and the Carry-Over

The budget process in Brazil is characterized by being continuous and simultaneous, comprising the preparation, approval, execution, control and evaluation of public sector expenditure programming in its physical and financial aspects. In this way, the budget piece defines the entire management process of public resources and presents itself as a way of restricting and disciplining the degree of discretion of the ruler (Matias-Pereira, 2012).

For Giacomoni (2010), the budget process is dynamic

and feeds back, as the first stage of the cycle is renewed annually with the elaboration of the budget proposal, the Annual Budget Law Project (PLOA). The PLOA, as far as it is concerned, is “the result of definitions contained in a medium-term program that, in turn, details long-term plans. Therefore, the budget process has greater substance when integrated with planning” (Giacconi, 2010, p.211).

For the effectiveness of the function of controlling the financial activity of the State, some basic premises or principles guide the Brazilian budgeting process, among them, the principle of annuality, also known as the principle of periodicity.

Based on the principle of annuality, which stems from several provisions expressed in the Federal Constitution (1988) — arts. 48, II, 165, III, and §5, and 166 — in addition to Law 4,320 (1964), budget execution must observe the financial year, specifically comprising the calendar year, that is, from January 1 to December 31st of the year to which the approved Annual Budget Law (LOA) refers.

Fortis and Gasparini (2017) emphasize the fact that the budget constitutes a kind of “delegation of competence” from the Legislative Power to the Executive Power, to carry out certain activities. In turn, this granting of power is made in a certain period of time, in view of the need for the Legislature to periodically review the Executive's work program and to validate the forecast of revenues and expenditures annually. From the economic point of view, the adoption of the principle of budgetary annuality makes it possible to forecast expenditures with a lower margin of error, as it is a short-term forecast.

There are, however, several criticisms related to the principle of budgetary annuality; among them we highlight: the distance between the budget and the planning, since the review of what is planned (Multiannual Plan and Budget Guidelines Law) does not happen at the same speed as the budget; the focus on immediate needs, neglecting, in a way, possible fiscal and economic restrictions; the immediate vision, which also contributes to the excess of bargaining in the government's allocative process; pressure for spending, which leads managers to carry out poorly planned or even unnecessary expenses, just so as not to lose the already approved budget and set precedents for future budget cuts (Fortis & Gasparini, 2017).

As the budget in Brazil is based on the incremental model,

that is, based on the previous year, with only marginal variations (Fitipaldi, Costa & Araújo, 2017), the resource allocation agents' behavior can be influenced by the conception that the loss of a current allocation reduces future budget ceilings (Carvalho, 2013). This perspective can influence managers to use the entire budget, even with unnecessary expenses (Piscitelli, 1988), defying the principle of budgetary good faith (Camargo, 2014, 2016).

Another peculiarity of the Brazilian scenario is the fact that carry over is not allowed, which is the possibility of using later the balance of an authorized appropriation, but not spent in a financial year (budget savings balance), which has led to the accumulation of expenditures made hastily at the end of each fiscal year, just to avoid the loss of the deliberate allocation (Souza, 2016). For economists Liebman and Mahoney (2013), this phenomenon related to budget execution can be translated through the expression “use it or lose it”.

Authors emphasize that the creation of a “use it or lose it” atmosphere related to budget execution, increases the pressure for spending on managers (Lee & Kendal, 2018; Freixas et al., 1985; Fichtner & Michel, 2016) and the use of resource inefficient (Alves, 2011; Liebman & Mahoney, 2013, 2017). For Ribeiro (2010), the rush to commit resources before the end of the financial year can result in lack of competition, contract negotiations inadequately carried out, poorly defined routines and acquisition of low priority items and services, as the opportunity cost is zero when it comes to spending resources that are about to expire (Liebman & Mahoney, 2017).

In a scenario of pressure to spend, there is a greater appreciation in the index of budget execution than the index of performance or effectiveness in the use of public spending (Camargo, 2014). However, there is evidence indicating that organizations have incentives to contain marginal expenditures at the beginning of the budget cycle, forming a type of “reserve” for a scenario of possible budget constraints or unpredictable expenditures. The use of this “reserve” at the end of the year demonstrates a conservative stance by managers in the face of uncertain future spending demands and the imminence of liquidity limitations (Liebman & Mahoney, 2017).

Considering these discussions, there are favorable arguments around the carry over, because the budget load avoids the concentration of inefficient expenditures at the end of the year, since managers, as they have the possibility to apply the balance that may not be used in a

subsequent fiscal year in the current period, would incur a smaller share of expenses without proper planning, which, in turn, would promote a more efficient use of resources (Fortis & Gasparini, 2017; Liebman & Mahoney, 2017).

On the other hand, the impossibility of carrying over the budget can encourage the extension of the period for using the resources beyond the financial year, through the mechanism known in Brazil as “unpaid commitments” (Douglas & Franklin, 2006; Aquino & Azevedo, 2017; Fortis & Gasparini, 2017). For some authors, the registration of expenses in outstanding balances, permitted by Brazilian legislation, ends up constituting a multiannual budget instrument and a type of carry over (Fortis & Gasparini, 2017; Aquino & Azevedo, 2017).

Considering the inherent complexity of the Brazilian budget process and its execution, we emphasize here that the management of public resources is also affected by the issue of contingency, understood as a mechanism of automatic and mandatory restriction of budget execution in the form of limitation of commitment and financial transactions, established by the Fiscal Responsibility Law (LRF) (Cruz, 2011; Galhardo Et Al., 2013; Abraham, 2016; Lima & Diniz, 2016).

Regarding contingency, Mendes (2008) emphasizes that the lack of regularity and predictability in the release of resources makes the task of managing public programs more difficult. That said, given the possibility of contingency, managers use artifices to ensure that the impacts of this mechanism do not compromise the operational capacity of the management unit, which could make the budget execution of projects in progress unfeasible. One of these artifices can be the irregular registration of expenses in unpaid commitments (Galhardo et al., 2013).

Before that, the following propositions are considered, namely: managers aim at the full budget execution of the credits authorized in the LOA (given the impossibility of carry over); pressure for spending (due to the use it or lose it phenomenon) can influence managers to execute the budget indiscriminately or ineffectively; managers can use artifices, such as the irregular registration of expenses in outstanding payments, just to protect themselves from possible budgetary and financial restrictions (contingency); the amount of expenses registered in outstanding balances, and subsequently canceled and/or re-registered due to non-execution, may indicate that the expenses were carried out without prior planning or under some type of “pressure”.

In this sense, the hypothesis of this research was elaborated: H1: The proportion of canceled and reinstated outstanding payables of Brazilian Federal Universities is positively influenced by the pressure for budget execution.

2.2 Unpaid Commitments (RAP)

Unpaid commitments include committed expenses, but not paid until December 31 of the financial year. These can be divided into two types: Processed Unpaid Commitments (RPP) and Unprocessed Unpaid Commitments (RPNP), the difference between both being the settlement or not of the expense, according to art. 67 of Decree 93,872 (1986).

The unpaid commitments are a mechanism expressed in the Federal Constitution (1988), in Law 4,320 (1964) and in Decree 93,872 (1986), and allows managers to go beyond the annuality of budget credits. We can say that they are an exception to the rigidity imposed by the principle of annuality, which presupposes that the income of the financial year must strictly support the expenses of the same year.

According to Castro (2013), the unpaid commitments contradict two principles: competence and annuality. As for the principle of competence, in the case of RPNP, there is a record of an obligation (expense) without the goods or services having been effectively delivered or performed; regarding the budgetary principle of annuality, the execution of the expenditure entered in the unpaid commitments ends up running through the financial year.

It is worth mentioning that, once registered in the unpaid commitment, the expense is only written off when it is paid or the commitment is canceled. In the absence of any of these facts, the unpaid commitments are re-entered in subsequent years until they are finally executed. It appears, therefore, that the balance provided for in the budget and approved by law for a given financial year is used, for one or more subsequent periods, without the need for a new evaluation by the Legislative Power. For Aquino and Azevedo (2017), the unpaid commitments are a typical example of carry over.

Alves (2011) states that the conservative stance adopted by the government, from the late release of budget appropriations to be used in the year, ends up causing a great concentration of issuance of commitments at the end of the financial year. The pressure for spending at the end of the year, in turn, feeds the amount of expenses that will be recorded in unpaid commitments.

Another aspect that ends up inducing the registration and re-registration of expenses in unpaid commitments, pointed out by Vieira and Santos (2018), are the expenditure contingency decrees and disbursement schedules and financial programming - instruments that serve to set limits for movement, commitment and payment of expenses, to be observed by the agencies in the financial year. For the authors, when analyzing the unpaid commitments, it is important to consider what affects the budget cycle after the authorization phase of budget appropriations, as well as its repercussions.

Aquino and Azevedo (2017) point out that one of the problems with expenses classified as unpaid commitments is that they end up being used to manage the primary result in the federal government, since the target of this result, foreseen in the LDO, would be artificially reached only by the growth of these balances, which has occurred at a worrying volume, as highlighted by the control agencies CGU and TCU, even competing with the federal government's own budget (Joint Technical Note 2, 2015).

Camargo (2014) confirms that there are incentives to increase this float (difference between the value of primary expenses registered in the unpaid commitments at the end of the year and the amount actually paid in the financial year), considering this issue of the need for the Federal Government to "fictitiously" increase its tax result.

Despite the impact that the unpaid commitments can generate on budgets, these include the difficulty in planning and financial execution of the following budgets, since they are expenses arising from previous years and constitute a debt for the public administration, which may affect their cash availability, as well as the commitment to pay the current year's expenses, since management can choose not to contract new debts while there are debts from previous years (Alves, 2011; Camargo, 2014; Lima, Figueiredo & Santos, 2017; Aquino & Azevedo, 2017).

2.3 Previous Studies

To expand the discussions on this intrinsic relationship between the budget and the unpaid commitments, we show below studies similar to the discussions presented here and which portrayed peculiarities of budget execution in the Brazilian context.

Santana (2016) studied the relationship between budget execution and the volume of inscriptions in unpaid commitments at the Federal University of Santa Catarina - UFSC. The author highlighted that the volume of

commitments corresponded to more than 50% of the amount committed in the years analyzed (2011 to 2013). The execution of works and other capital expenditures were significant in the composition of these high rates of inscriptions in unpaid commitments, and their respective cancellations in subsequent years.

Vieira and Santos (2018) discussed the budgetary and financial execution of public health service actions and the implications of contingency payment of expenses. They call attention to the high registration of expenses in outstanding amounts, followed by their subsequent cancellation, and their impact on priority areas such as health, thus contributing to the worsening of the problems faced by the SUS (Brazilian public health system). Regarding the financial programming established in the contingency decrees, the authors point out that it made the execution of the SUS budget and the unpaid commitments unfeasible, in the period between 2002 and 2015.

Coelho et al. (2019) developed a study at UFSC to analyze the progression of outstanding balances from 2011 to 2016, as well as their composition. Regarding the progression of the amounts, the authors observed that there was an increase in the balance recorded in unpaid commitments until 2013, and that there was a reduction from 2014 onwards, in view of the actions taken by the management. The authors suggest that the aforementioned reduction could be related to the changes in Decree 93,872 (1986), which made managers responsible for registering unprocessed commitments. Of the amount registered as unpaid commitments at the institution, 70% were related to capital expenditures.

At the international level, the study conducted by Liebman and Mahoney (2017) examined the pressure for spending at the end of the fiscal period, motivated by the use it or lose it phenomenon, in the US federal government. The authors showed that the combination of uncertainty and diminishing budgets led the agency to engage in preemptive savings during the first part of the year, but at the end of the year, the prospect of budget expiration led them to spend all of their remaining budget resources inefficiently.

Expenses related to building maintenance and repair, acquisition of office furniture and information technology (IT) equipment, services and equipment showed significantly higher than average rates at the end of the year (expenses in the last week of the year represented 8.7%, when the weekly average in case of uniform distribution would be 1.9%) (Liebman & Mahoney, 2017).

Liebman and Mahoney (2017) suggest that policies could solve this problem, such as allowing government agencies to carry over the budget, keeping the budget periodicity on an annual basis, and that a modest change in budget procedures - such as a four-month grace period for the following year's use of budget savings from the previous year - could help to minimize the pressure for low-quality spending and waste.

3 Methodological Procedures

3.1 Research Characterization and Sample

This research proposes to investigate whether there is an influence of the "use it or lose it" phenomenon in the budget execution process of Brazilian Federal Universities, from the analysis of the relationship between the pressure for expenses in the budget execution of the 4th quarter of the financial year and the proportion of canceled and reinstated unpaid commitments in Brazilian Federal Universities, considering the premise that "spending pressure" can influence managers to execute the budget indiscriminately or ineffectively, reflecting the amount of expenses that will be recorded in unpaid commitments.

In the proposed study, the population comprised the 63 Brazilian Federal Universities and the analyzed data comprised the period of 2015 and 2019. We analyzed the budget execution in the last quarter of a financial year and the respective inscriptions in unpaid commitments, observing their reflexes in subsequent years (payments, cancellations or re-enrollments). For example, the expenses recorded in unpaid commitments in 2015 were analyzed with their reflections in 2016 and subsequent years. However, the reflections of the unpaid commitments for the year 2018 were analyzed only until the year 2019.

3.2 Definition of Variables and Econometric Model

Based on the objective proposed for this research, the main budget variables studied were: "Canceled unpaid commitments plus reinstated unpaid commitments" (RAP_C_R) and "Pressure for spending in the 4th quarter" (PO). Data for the analysis of these variables were collected on the Treasury Management website and comprised: canceled or reinstated unpaid commitments, the total discretionary budget (annual) and the universities' budget execution (expenses committed in the year and expenses committed in the 4th quarter of the financial year).

The values corresponding to the dependent variable "Canceled unpaid commitments plus reinstated unpaid

commitments" (RAP_C_R) were collected from reports containing information on how much universities canceled or reinstated in a year, unpaid commitments resulting from the budget committed in the last quarter of previous years.

The last quarter was chosen due to the greater propensity to spend in this period, justified by the need for managers to execute the entire budget in the financial year, given the impossibility of taking advantage of budget savings in the following year (Liebman & Mahoney, 2017, 2013). The choice of the end of the year is also due to the conservative behavior of the government, which releases budget appropriations late, which potentially increases the amount of expenses that will be entered in the unpaid commitments (Alves, 2011).

The "Pressure for spending in the 4th quarter" (PO) was established as an independent variable of interest. This variable was calculated from the proportion of expenditure committed in the last three months of the year, namely October, November and December, in relation to the total committed discretionary budget.

The first control variable established was: Unpaid Commitments – calculated from the proportion of the budget committed in the 4th quarter and recorded in unpaid commitments (RAP). In this case, it represents how much of the budget committed in this period was recorded in the unpaid commitments at the end of the year.

It is worth noting, as a limitation of this indicator, that not every RAP registration that occurs in the last quarter results from the "use it or lose it" phenomenon, as part of the committed expenditure may not have completed all the phases of its execution. This implies that there are inscriptions in commitments that were not caused by pressure, but due to lack of time to complete the stages of public expenditure execution (settlement and payment), mainly in December.

The other control variables were "Total Discretionary Endowment" (DOT) and "Equivalent Graduation Students" (AGE), collected in management reports published annually by universities.

3.2.1 Dependent Variable

For the construction of the dependent variable "Canceled unpaid commitments plus reinstated unpaid commitments" (RAP_C_R), the proportion of how much of the budget committed in the last quarter of the year, and recorded

in unpaid commitments, was canceled or reinstated in the subsequent year was calculated, not getting to complete all stages of public expenditure execution until its payment. The underlying understanding is that there may be expenses incurred without prior planning (given their subsequent non-execution), or under some kind of external “pressure” (Liebman & Mahoney, 2017, 2013), as they were entered in unpaid commitments and not come to fruition in order to meet the final activities of the institutions.

Thus, it was assumed that the higher the value of the variable, it means that the credit committed at the end of the year was only to bring the budget execution closer to 100% of the deliberated budget..

It is noteworthy that there are motivations for university managers to execute their entire budget, and one of them is the scenario of budget restrictions, which has resulted in cuts in the budgets of Federal Institutions of Higher Education (IFES) (Dourado, 2019).

The incremental model, on which the Brazilian budget is based, whose assumption is that each budget prepared is based on the previous ones (Fitipaldi et al., 2017), also corroborates as a pressure factor to maintain the high level of budget execution (which reflects, therefore, in the entry of expenses in unpaid commitments), since the non-use of the initial proposal of the budget would cause a loss of appropriation for the following year (Carvalho, 2013). In this sense, Niskanen (1971) states that in the process of public choices, the greatest interests of public managers are to maximize the budget, even if their decisions lead to an inefficient allocation of the resources entrusted to them.

3.2.2 Independent Variables

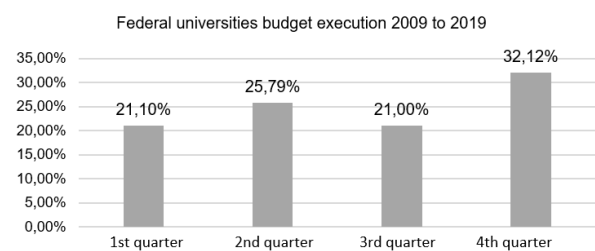
The “4th quarter spending pressure” (PO) was calculated from the proportion of how much of the total discretionary budget was spent in the last three months of the year. With this, we intend to verify if the amount of expenses executed in the last quarter is more significant than in previous quarters, which may represent a greater concentration of expenses incurred in this period, explained by the use or lose phenomenon imbued in the budget execution process. Such expenditures are more likely to have been carried out ineffectively and inefficiently (Alves, 2011; Liebman & Mahoney, 2017).

The methodological choice of the period of analysis was anchored in the legal commandments inserted in the Fiscal Responsibility Law, which governs, for some annexes

of the Summary Report of Budget Execution (RREO), the quarterly calculation of certain fiscal indicators. Nevertheless, the international literature has adopted an analysis methodology that is based on the uniformity of budget execution at monthly intervals, as in the study by Fichtner and Michel (2016).

In view of the above, it is important to consider the complexity inherent to the Brazilian budget process, and, as a result, that budget execution would not be uniform during the financial year. Therefore, we decided to carry out a survey of historical data, covering the period from 2009 to 2019, to analyze the quarterly budget execution of federal universities, as shown in Figure 1.

Figure 1 Historical average of budget execution by quarter (2009-2019)



Source: Research data (2019)

Figure 1 graphically demonstrates that the universities' budget execution is, in fact, misshapen, with the last quarter being the one that concentrates the highest percentage of execution, corresponding to 32% in the analyzed period. This analysis corroborates to highlight the conservative posture of managers, in the face of uncertainty scenarios (Liebman & Mahoney, 2017), when they reserve part of the deliberate budget “as a cushion to protect the uncertainties of the year” (Aquino & Azevedo, 2017, p.582).

Thus, quarterly data were used for the period of analysis of the behavior of university expenditures. As for the pressure, it will be confirmed if the budget execution exceeds 25%, using the uniform distribution of expenses as a counterpoint, that is, the objective is to demonstrate that the budget commitment is greater in the last quarter. Among the selected variables, some were also established as control variables, namely: Unpaid Commitments (RAP) – proportion of those committed in the 4th quarter, number of Equivalent Undergraduate Students (AGE) and Total Discretionary Endowment (DOT).

The RAP variable was established considering the proportion of what was committed in the 4th quarter and recorded in unpaid commitments. The analysis of this variable can indicate how much was spent in the financial year, in order to reach the totality of the budget execution, and the reflection of the pressure for expenses in the amount entered in the unpaid commitments.

The proxy used to measure the size of universities was the management indicator number of “Equivalent Graduation Students” (AGE), provided to the Federal Audit Court (TCU). The AGE calculation takes into account the number of undergraduates, in the standard duration of the course, as well as the number of students who enrolled, in addition to the retention factor. The most frequently used proxy to measure the size of universities is the number of students (Gallego et al., 2009; Católico, 2012; Pêsoa et al., 2018)

The other control variable used was the Total Discretionary Endowment (DOT), which may have some influence on the canceled and reinstated unpaid commitments of the institutions, as a larger budget may represent a greater management difficulty and, respectively, higher cancellations and re-enrollments.

Table 1. Variables description

Dependent Variable		
Dimension	Indicator	Definition
Unpaid commitments	Canceled or reinstated Unpaid Commitments (RAP_C_R)	Expenses registered in RAP canceled or reinstated
		Expenses committed in the 4th quarter of the financial year
Independent Variables		
Dimension	Indicator	Definition
Pressure	Pressure for spending (PO)	Expenses committed in the 4th quarter of the financial year
		Total expenses committed in the financial year
Control Variables	Unpaid commitments (RAP)	Commitments registered in unpaid commitments
		Expenses committed in the 4th quarter of the financial year
Control Variables	Equivalent graduation students (AGE)	TCU Management Indicator that indicates the number of students
		Total discretionary endowment (DOT)

Note. The amount of expenses committed and recorded in the unpaid commitments corresponds only to the portion of the discretionary budget.

Source: Prepared by the authors (2019).

3.2.3 Econometric model

The econometric technique used to verify the influence

of independent variables on the dependent variable was regression with panel data. The Brazilian federal universities formed the research population. As for the econometric model, it is presented in equation 1.

$$RAP_C_R_{it+1} = \beta_0 + \beta_1 PO_{it} + \beta_2 RAP + \beta_3 AGE_{it} + \beta_4 DOT_{it} + \epsilon_{it} \quad (1)$$

Where:

RAP_C_R_{it+1} = Canceled unpaid commitments plus reinstated unpaid commitments i in year t + 1.

PO = Pressure for spending in the 4th quarter of the financial year;

RAP = Unpaid commitments;

AGE_{it} = Number of equivalent undergraduate students;

DOT_{it} = Total discretionary endowment;

ε_{it} = Error term.

4. Results

4.1 Descriptive Analysis

Table 2 show the descriptive analysis of the variables: Pressure for spending in the 4th quarter (PO), Unpaid commitments (RAP), number of equivalent undergraduate students (AGE) and Total Discretionary Endowment (DOT), corresponding to the 63 Brazilian universities analyzed, from 2015 to 2018, totaling 252 observations. In 2019, the effects of these variables were analyzed in the proportion of canceled and reinstated unpaid commitments.

Table 2. Variables descriptive analysis

Variable	Men	Standard deviation	Min.	Max.	Observations (n)
PO	0,27	0,0904	-0,004	0,6194	252
RAP	0,7075	0,1917	0,1691	0,99	252
AGE	25.548	18.497	971	77.552	252
DOT	126.000.000	92.000.000	17.900.000	603.000.000	252

Source: Research data (2019)

a) Pressure for spending (PO)

The pressure for spending (PO) variable was calculated from the proportion of how much of the total discretionary budget was spent in the last three months of the financial year, as described in the methodological procedures chapter.

Based on Table 2, the average pressure for spending in the 4th quarter (PO) shown by universities is 27%, with a standard deviation of 0.09 and minimum and maximum values ranging between 0 and 62%. The amplitude of the

data and the standard deviation indicate a considerable distinction in the way universities execute their budget, with regard to the amount of the budget that is committed in the last three months of the year, which may indicate an irregular and complex budget distribution, corroborating the literature (Alves, 2011; Cruz, 2011; Galhardo et al., 2013; Abraham, 2016; Lima & Diniz, 2016).

The research highlights a peculiar reality of the Brazilian scenario: the concentration of expenses in the last quarter of the financial year, which denotes greater pressure on managers regarding budget execution. We also found that the historical average of pressure for spending (32%) is more representative than the average comprised in the investigated period (27%), as shown in Figure 1. Such findings show that the Brazilian budget execution does not follow a uniform trend, which would correspond to a proportion of expenditures around 25% in each quarter.

With this, we also noticed the managers' conservative behavior when making the choice to spend only at the end of the year. This behavior occurs in the face of uncertainty scenarios, when the manager considers the possibility of budgetary restrictions and liquidity limitations in the future (Liebman & Mahoney, 2017).

It is worth noting that the Brazilian budget process has certain complexities - budget release is late; its distribution does not occur regularly; there are restriction mechanisms such as contingencies, with commitment limitations (Alves, 2011; Cruz, 2011; Galhardo et al., 2013; Abraham, 2016; Lima & Diniz, 2016) - and this may corroborate this increase in spending in the last quarter.

Still analyzing Table 2, the maximum value represents the highest budget execution in the 4th quarter evidenced in the research, that is, an indication of greater pressure for spending, which was seen at the Federal University of Juiz de Fora, in 2017 (61, 94%). In addition, the minimum value of -0.004, seen in the Federal University of South Bahia in 2018, indicates the behavior of canceling more than committing in these last months of the year.

To further explore the pressure for spending variable, Tables 3 to 4 follow, with the annual ranking of universities that presented a percentage of budget execution above 25% in the 4th quarter, in at least some of the years of the survey.

Table 3 - Number of universities with pressure for spending

Year(s) with Pressure > 25%	Universities (Amount)	% of the total of Universities
1	10	15,87%
2	21	33,33%
3	17	26,98%
4	7	11,11%
Total	55	87,30%

Source: Research data (2019)

Table 3 shows that 55 universities presented pressure for spending in the 4th quarter, which represents 87% of the total number of universities. Of this percentage, 11% showed pressure for spending in all the years analyzed, as detailed in Table 4.

Table 4. Average values of universities that presented pressure for spending

University	Pressure	%RAP	RAP_C_R	RAP_Executed
Federal University of Juiz de Fora	49%	73%	15%	85%
Federal University of Tocantins Foundation	38%	85%	17%	81%
Federal University of Triângulo Mineiro	35%	69%	9%	92%
Federal Technological University of Paraná	36%	75%	15%	86%
Federal University of Rondônia Foundation	39%	96%	37%	64%
University of Brasília Foundation	33%	68%	13%	88%
Federal University of ABC Foundation	34%	91%	23%	76%
Mean	38%	80%	19%	82%

Source: Research data (2019)

From Table 4, we see that there is a recurring practice of commitment in the last months of the financial year in some universities, with values above the average in all the years studied. Here, the "use it or lose it" effect in the budget process is reinforced, which can imply a smaller margin for strategic decision-making and an injudicious budget execution, as observed by Ribeiro (2010), resulting in low-priority and quality spending, as indicated by Liebman and Mahoney (2017).

The cultural presence of the effects of use it or lose it supports the understanding of this behavior by public managers, in the form of cognitive biases, as suggested by Camargo (2016). Cognitive biases have effects on the rational decision-making process, focusing and strengthening strategic thinking (Laroche & Nioche, 2006).

One of the biases that can affect managers' rationality is framing, as the choices of these decision makers are sensitive to the way they capture problems (Laroche & Nioche, 2006), and influenced by contextual pressures (Palazzo, Krings & Hoffrage, 2012). That said, considering the need to execute the entire budget in a short period of time, managers' choices may not be strategic and rational, which would be reflected in the inefficient allocation of resources.

The pressure on managers to execute as much of the budget as possible is supported by the incremental budgeting model. Here it is highlighted that when the budget resources are not executed, the surplus could be understood as appropriations that exceeded the entity's needs (Aquino & Azevedo, 2017; Carvalho, 2013; Piscitelli, 1988). In turn, this would imply a reduction in budget ceilings for subsequent years (Fitipaldi et al., 2017).

One must also consider that there are accountability obligations on public managers, as they must meet the demands of the various stakeholders in the use of public goods and services (Lima & Diniz, 2016). That said, they strive to ensure the full use of the resources provided in their budget, due to the impossibility of carrying the unused balance over into the next fiscal year (Liebman & Mahoney, 2017, 2013).

It is worth noting, according to Table 5, that 8 universities did not present, in any of the years, budget execution in the 4th quarter above 25%, which suggests some insights: the dynamics of releasing budget credits can be different between universities; or, this may be the result of better planning and improvement of administrative practices, coupled with greater capacity in terms of leadership. Such a finding can be explained through the theory of cognitive resources, which assumes that experienced and well-informed leaders make better plans than those with less skills and knowledge (Fiedler, 1986).

Table 5. Average values of universities that did not show pressure for spending

University	Pressure	%RAP	RAP_C_R	RAP_Executed
Federal University of Alagoas	19%	85%	17%	83%
Federal University of Goiás	19%	64%	18%	81%
Federal Rural University of Rio de Janeiro	20%	66%	15%	86%
Federal Rural University of Amazônia	18%	66%	21%	81%
Federal University of Uberlândia Foundation	22%	62%	15%	85%
Federal University of Mato Grosso Foundation	14%	53%	15%	86%
Federal University of Ouro Preto Foundation	21%	67%	6%	95%
Federal University of São Carlos Foundation	23%	70%	10%	91%
Mean	20%	67%	15%	86%

Source: Research data (2019)

Camargo (2014) emphasizes that effectively planning public spending, minimizing or taking advantage of uncertainties about the execution of revenue (quotas and financial transfers) and expenditure, comprises the principle of budgetary good faith.

b) Unpaid commitments (RAP)

Continuing with the descriptive analysis of Table 2, we also see that of the amount committed in the last three months of the financial year, the amount entered in unpaid commitments (RAP) represents an average of 70%, considering a standard deviation of 0.1917. The maximum value for this variable was 99%, indicating that some universities registered almost all of what was committed in the 4th quarter of the financial year in unpaid commitments.

According to Alves (2011), the Federal Government's conservative stance, the late release of budget appropriations to be used in the year, ends up causing a great concentration of issuance of commitments at the end of the financial year and, consequently, the registration of expenses unpaid commitments. We also understand that the nature of some expenses may contribute to the increase in enrollments in outstanding unpaid commitments at universities, such as the execution of works and other capital expenditures, as indicated in the studies by Santana (2016) and Coelho et al., (2019).

Based on Tables 4 and 5, we could verify that universities that presented pressure for spending in the 4th quarter, in the 4 years analyzed, also had a higher average percentage of enrollments in unpaid commitments (%RAP = 80%), compared with the universities that showed no pressure for spending in the period (%RAP = 67%).

Analyzing the representative percentage of what was inscribed in unpaid commitments by universities, relating exclusively to commitments issued in the 4th quarter of the financial year, we can find an indication that the resource was committed under a "use it or lose it" atmosphere, with a view to the impossibility of using the appropriation approved for that year in the following year, considering the principle of budgetary annuality, which increases the pressure for spending, as shown in the literature (Lee & Kendal, 2018; Fichtner & Michel, 2016).

This way, we understand that the pressure for spending ended up encouraging the extension of the term for the use of resources beyond the financial year, and the creation of a "parallel budget", from the entry of expenses in unpaid commitments (Douglas & Franklin, 2006; Alves, 2011; Camargo, 2014; Lima, Figueiredo & Santos, 2017; Aquino & Azevedo, 2017). An example of this situation can be seen in Table 4, in this case, the Federal University of Rondônia Foundation, which showed an average percentage of commitments registered in unpaid commitments (RAP) of 96%. Of this percentage, 37% of the commitments were canceled or reinstated in the

following year, which corresponded to a budget execution of only 64%.

It should be noted that the pressure for spending can lead managers to carry out poorly planned or even unnecessary expenses (Souza, 2016; Fortis & Gasparini, 2017; Liebman & Mahoney, 2017), which in the public sector can materialize in different ways, such as: lack of competition, negotiations and contracts carried out inappropriately; ill-defined routines and acquisition of low-priority items and services (Liebman & Mahoney, 2017, 2013).

We also highlight that, as shown in Tables 4 and 5, both the universities that presented pressure for budget execution in the 4th quarter of the financial year, as well as those that did not present this pressure, executed most of what was committed and enrolled most of the unpaid commitments in a subsequent period. This can be observed from the average of the RAP Executed, which corresponded to 82% and 86%, respectively.

Although the RAP Executed average difference is not expressive in percentage terms (only 4% - among the universities that presented pressure and those that did not), this analysis, in isolation, is insufficient to confirm whether the expenses committed and registered in RAP were preceded by prior planning, or if carried out only to avoid the loss of the already approved allocation (Souza, 2016), since in the Brazilian context there are indications of a greater appreciation in the budget execution index than the performance or effectiveness index in the use of public spending (Camargo, 2014).

Based on the average percentage of RAP Executed, it is also not possible to confirm whether there were undue registrations in RAP, that is, in disagreement with the list of conditions provided for in art. 35 of Decree 93,872 (1986) and its amendments.

Finally, research evidence indicates that the unpaid commitments constituted a budgetary loading mechanism (carry over), as suggested by Aquino and Azevedo (2017), being the alternative that universities had at their disposal to ensure the usability of resources available, and, therefore, the continuity of their projects and the maintenance of academic activities, considering the unpredictability of future scenarios.

However, the increase in registrations in unpaid commitments has been significant and is something of concern, as it has made it difficult "to manage the budget

balance and obtain a clear idea of the government's fiscal result" (Aquino & Azevedo, 2017, p. 581).

It is argued, based on national (Aquino & Azevedo, 2017; Fortis & Gasparini, 2017; Alves 2011) and international (Liebman & Mahoney, 2013, 2017; Fichtner & Michel, 2016) literature that the carry-over has several advantages, and, if allowed by the Brazilian Federal Government, would enable the following aspects: better planning of acquisitions and contracts, based on budgetary reserves from previous years; the minimization of pressure on managers, by enabling a more judicious budget execution; the reduction of low-quality spending and waste; and increased transparency of public spending.

In this sense, Liebman and Mahoney (2017) suggest that a simple change in budgetary procedures - such as a four-month grace period for using budget savings from the previous year in the following year - could contribute to minimizing this pressure for spending. In Brazil's case, it would be necessary to analyze the impact of such a change, especially regarding the reduction of undue inscriptions in unpaid commitments, whether there would be implications in this sense.

c) Equivalent Undergraduate Students (AGE) and Total Discretionary Endowment (DOT)

The variable used as a proxy for university size - Equivalent Undergraduate Students (AGE) - had an average of 25,548, with a standard deviation of 18,497, a minimum value of 971 and a maximum of 77,552. This high variation points to a diversification in the size of the institutions studied, which may present different behaviors, as well as different challenges regarding budget execution.

In the same way, the discretionary budget (DOT), which also presented a large variation, with a minimum value of R\$ 17,900,000 and a maximum of R\$ 603,000,000, may help to explain this difference in the way universities carry out their budget. Considering the dispersion of the discretionary budget of the institutions surveyed, its measurement was the result of the natural logarithm of this budget, in order to avoid possible econometric problems regarding data homogeneity.

4.2 Statistical Model Analysis

Based on the hypothesis proposed in this research, the statistical model sought to verify if the proportion of

canceled and reinstated unpaid commitments in Brazilian Federal Universities is positively influenced by the pressure for budget execution.

The results of the panel data with fixed effects are shown in Table 6. The model was better estimated by the fixed effect, not showing multicollinearity of the data and having the normality assumption relaxed according to the central limit theorem. Thus, it was seen that there was no autocorrelation, however, the correction for heteroskedasticity was necessary, and a robust regression was estimated.

Table 6. Influence of pressure for spending on RAP_C_R

Explanatory Variable	Coefficientes	Standard Deviation	Statistics t	P-value	
Constant	-1.435 986	0,8344305	-1.72	0.087*	
PO	0,1779784	0,1034484	1.72	0.087*	
RAP	0,1359002	0,061801	2.20	0.029**	
AGE	-0,00000648	0,00000339	-1.91	0.057*	
Log Det	0,0883769	0,0439301	2.01	0.046**	
Description	Value	Description	Value	Description	Value
R2	0.0596	Test F	0.0003	Nº de Observações	252

Notes: PO = 4th Quarter Expense Pressure; RAP = Remaining Payable; AGEit = No. of Equivalent Undergraduate Students; DOTit = Total Discretionary Endowment.

** , * = significant at 5 and 10% respectively.

Source: Research data (2019)

From Table 6, we see that the variable PO showed statistical significance at the level of 10%, with a positive sign. This shows that the greater the pressure for spending, that is, the concentration of the discretionary budget executed in the 4th quarter, the greater the amount of Canceled or reinstated unpaid commitments (RAP_C_R) in the subsequent period.

It is worth noting that canceled or reinstated unpaid commitments, used for the purposes of this research, come from expenses incurred in the period when budget execution is more representative for universities, a period associated with a greater propensity to spend, due to the proximity of closure (Fichtner & Michel, 2016; Liebman & Mahoney, 2017, 2013).

The managers’ interest in showing a significant percentage of budget execution close to the total approved budget stems from the concern that the return of resources would draw the attention of the Legislature, indicating that such expenditures would not be necessary, which could have repercussions on future budget cuts (Lee & Kendal, 2018; Freixas et al., 1985; Fichtner & Michel, 2016). In this case, managers’ behavior ends up being biased by the cultural presence of the effects of use it or lose it (Camargo, 2016),

resulting from the incremental budgeting tradition.

In turn, the literature indicates that this increase in spending at the end of the year can result in low-priority expenditures (Liebman & Mahoney, 2017; Souza, 2016; Fortis & Gasparini, 2017). This time, it was assumed that if the unpaid commitments were canceled or reinstated by the universities, it is because they were expenses incurred with a certain degree of planning incapacity, in view of their subsequent non-execution; or under some kind of external “pressure” (Liebman & Mahoney, 2017, 2013), as they did not actually materialize.

The research finding emerges to reinforce that the pressure for spending is potentiated by the “use it or lose it” phenomenon, imbued in the budget process (Liebman & Mahoney, 2013, 2017). The positive influence of spending pressure on the amount of canceled or reinstated unpaid commitments has been proven, which tends to be greater the greater the pressure atmosphere.

Table 6 also shows that the variable RAP, representative of the inscriptions in unpaid commitments due to expenses incurred in the last three months of the financial year, presented statistical significance at the level of 5%, with a positive sign. This means that the institutions that registered the most commitments in RAP tended to cancel them or re-enroll them in unpaid commitments in the following year, evidencing the difficulty of planning inherent to what is carried out under an atmosphere of “pressure”.

Planning is a key element for the effective use of public resources and meeting the demands of society. When this piece fails to be effective, it implies inefficiencies in budget execution. However, the lack of regularity (or uncertainty) in the receipt of funds ends up making the planning process even more difficult. This dynamic of recording expenses in payables, and then proceeding with their cancellation or re-registration, has been an alternative adopted by managers in view of the complexity of the current scenario.

In this study, the variable AGE, taken as a proxy for the size of universities, presented statistical significance at the level of 10%, with a negative sign. This relationship indicates that the larger the university, in terms of number of students, the lower the value of canceled and reinstated unpaid commitments. In this case, it was found that the largest universities were able to minimize the effects of pressure for expenses by optimizing their planning, thus reflecting in better budget execution, with lower rates of cancellations and re-enrollments of commitments in

unpaid commitments.

Regarding the DOT variable, which represents the size of the institutions' discretionary endowment, it presented statistical significance at the level of 5% with a positive sign. This result indicates that the greater the budget of universities, the greater the amount of canceled and reinstated unpaid commitments, which may be an indicator that represents the complexity of planning and its relevance to ensure the effectiveness of budget execution.

5 Final Considerations

This research sought to investigate the relationship between the pressure for spending in budget execution and the proportion of canceled and reinstated unpaid commitments in Brazilian Federal Universities.

Considering the expressive growth of unpaid commitments, one of the greatest problems of the Brazilian budgetary-financial execution, this mechanism started to be considered a type of carry-over (budget load), harmful to the management of the budget balance and to the achievement of a clear notion of the government's fiscal result (Camargo, 2014; Aquino & Azevedo, 2017). In addition, unpaid commitments can be used as a response to spending pressures inherent in the budget execution process.

Pressure for spending is often observed in government administrations, especially in the last quarter of the fiscal year, so there is no return of funds. This "use it or lose it" atmosphere created around the budget execution process can cause damage to the public administration, leading managers to the indiscriminate use of resources and ineffectively spending, without proper planning.

Among the 63 universities studied, we found that 55 (87%) presented pressure for spending in the last quarter of the financial year, in at least one of the years investigated; 7 universities (11%) presented pressure for budget execution in the 4th quarter (average above 25%) in the 4 years analyzed; and 8 (12%) showed no pressure for spending in any of the years, during the period covered by the survey (2015 to 2018).

We also found that the universities that presented pressure for spending (Table 4) in the 4 years analyzed, exhibited a higher average percentage of unpaid commitments (%RAP = 80%) compared with universities that did not present pressure for expenses in the period (%RAP = 67%). This finding may be an indication that the resources were

committed under a "use it or lose it" atmosphere, in view of the impossibility of using the appropriation in the following year.

Evidence indicates that the unpaid commitments constituted a mechanism for carrying over the budget for the universities, being an alternative used by the institutions to guarantee the usability of the available resources, and, therefore, the continuity of their projects and the maintenance of academic activities, considering the unpredictability of future scenarios.

The statistical model of panel data with fixed effects was used to verify if the proportion of canceled and reinstated unpaid commitments of Brazilian Federal Universities was influenced by the pressure for budget execution in the 4th quarter. The findings indicated that the greater the pressure for spending, the greater the amount of canceled or reinstated unpaid commitments (statistical significance at the 10% level, with a positive sign). Thus, the positive influence of spending pressure on the amount of canceled or reinstated unpaid commitments was confirmed, which tends to be greater, the greater the pressure for budget execution.

Furthermore, it was found that the institutions that registered the most commitments in unpaid commitments, of those issued in the last quarter, also showed a greater tendency to cancel or re-enroll them in the following year, evidencing the planning difficulty inherent to what is executed under a "pressure" atmosphere (statistical significance at the 5% level, with a positive sign).

It should be noted that when planning fails to be effective, this results in inefficiencies in budget execution. However, the lack of regularity (or uncertainty) associated with the receipt of funds ends up making the institutions' planning process even more difficult, not to mention that a scenario of uncertainties, with possible budget restrictions, corroborates for managers to have a conservative behavior, making reserves to spend only at the end of the year. But this can create a kind of cognitive bias in managers, leading them to less strategic or even dysfunctional behaviors.

Cognitive biases have effects on the rational decision-making process (Laroche & Nioche, 2006). Thus, managers, when suffering external pressures to comply with the budget, when approaching the end of the financial year, may be led to execute the budget in a less judicious way, as observed by Ribeiro (2010), given the influence of contextual pressures (Palazzo et al., 2012)

and framing bias, which assumes that the choices of these decision makers are sensitive to the way they capture problems (Laroche & Nioche, 2006).

With the purpose of encouraging the development of discussions on the theme of unpaid commitments, and considering the problem surrounding the pressure for spending and the influence of the use it or lose it phenomenon in budget execution, which has its implications for the behavior of managers, this research brings practical contributions on how to analyze the relationship between these variables (pressure for spending x unpaid commitments). It is worth noting that, in scenarios of budgetary restrictions and uncertainties, the pressure for spending and its respective reflexes on the unpaid commitments and on the efficiency of public spending should be the subject of further reflection.

We suggest that future research be carried out in other public sector entities (or segments), analyzing the pressure for spending and how the unpaid commitments behave, given the peculiarities (and difficulties) inherent to the budget execution of each context.

Such research can analyze the pressure for spending based on the percentage committed in the last week of the fiscal year, as suggested by Liebman and Mahoney (2017), although it is recognized that it is difficult to segregate expenses that constitute unpaid commitments resulting from the "pressure" for expenses, of those that have not yet completed all the phases of their execution. However, such research can employ a new analysis methodology and deepen the cognitive and behavioral aspects.

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