

ANALYSIS OF ACCERTABILITY OF PUBLIC WORKS BUDGETS: CASE STUDY

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ABSTRACT

In Brazil, the state is responsible for investing 5% of its gross domestic product in public works, from various sectors, from infrastructure to health unit reforms. In theory, this investment should warm the market and ensure an adequate infrastructure, but what happens is a slow market and a high index of works not completed, abandoned or delivered in disagreement with the minimum conditions of use. This work aims, through the analysis of three budgets, to check within this limited cut, the quality and feasibility of budgets pre-arranged for the execution of works. After analyzing the cases presented, it was possible to conclude that there is a divergence between the market value and the budgeted value, due to the absence of compositions necessary for the proper execution of the service, it was also observed the absence of compensatory mechanisms of the natural lag of base prices of the budgets and the values of inputs when the work is carried out.

Keywords: Public Constructions, Budgets.

I. INTRODUCTION

In the private sector, every investment stops by a feasibility study, besides defining its financial return, it is necessary to estimate its cost beforehand. Such estimation is made through budgeting. In the traditional public administration model, bidding is a sine qua non for public works contracting. According to article 7 of Law 8.666 / 93 works and services can only be bid if there is a basic project and detailed budget in spreadsheets that express the composition of all its unit costs [1].

At the present time in Brazil, according to the Industry Strategic Map, there is a total of 10 billion losses in standstill works across the country, and it is a challenge for project management to define more effective methodologies for resource allocation.

These works, which are currently at a standstill, had a focus, and were the object of a national strategy, aimed at the public good within their deadlines and the final values of their contracts. Many of these, according to the Industry Strategic Map, still had aspects that conditioned their non-completion, either due to a project not so well interpreted or lack of information defined in it.

Legally, according to the Arts. 7th, 8th, 13th, 14th and 15th of Federal Law No. 5,194 / 66, the ESTIMATIVE BUDGET of the body accompanying the bidding notice, provided for in paragraph II, Paragraph 2, item 17 of Article 40 of Law No. 8.666

/ 93, You must have your authorship duly identified in the document, with the full name of the budgets, profession of civil engineer or architect and the registration number in CREA.

As a result of this legal duty, analyzing the budgets of projects from the aspect of planning, cost sizing, and forecasting revenues for the execution of works, within the stipulated time frame is of vital importance for the correct management of public funds.

In this context, this article aims to evaluate under technical and economic aspects the feasibility and feasibility of public works budget cases.

II. BIBLIOGRAPHIC REFERENCE

II.1 DETAILS OF BUDGET DETAIL

Whether in the public sector or in the private sector, before the detailed development of an executive project there is already a concern of the manager to have a sense of the cost of the budget. This is a very understandable concern, because it is from this prior assessment that he will choose to continue the project, or increase it in scope, or cut parts, or reduce the finishing pattern, or even abort it if it comes to. conclusion that it does not have the necessary resources to carry out the work [2].

Depending on how detailed the budget is, it can be defined as Cost Estimate, Preliminary Budget, or Analytical or Detailed Budget.

- a. Cost Estimate: Expedited appraisal based on historical costs and comparison with similar projects. It gives a rough idea of the order of magnitude of the cost of the venture.
- b. Preliminary Budget: There is more detail than the estimate of costs presupposes the survey of quantities and requires proper price research.
- c. Analytical Budget: Prepared Through Cost Compounding and Extensive Price Research, it is through this budget that a public works bid is held.

II.2 EXECUTIVE BUDGET

Unlike the conventional budget that sees the work as done, the executive budget is concerned with all the details of how the work will be built. The executive budget responds to the need to model costs according to how they incur on the site over time [3].

The executive budget consists essentially of matching the information provided by the budget to the data obtained on site according to a concept of operation, that is, the task must be the executive budget is closely linked to the time the activities are performed on the site [4].

The executive budget has as its budgeted parameter the activity. In this context, the planning of the work is carried out through work packages following the project execution strategy [5].

The advantages of using the executive budget are several and essentially linked to the transparency in which the work is exposed, thus increasing the power of decision once considered cost and time. The budgeted parameters are closely related to the moment of execution, enabling the balancing of work teams,

including considering the unproductive times of certain operations, and, in addition, the supply sector is optimized, as the cadence of employees becomes transparent. necessary materials. These attitudes enable the budget as a source of rationalization of construction management [6].

II.3 PUBLIC BIDS

II.3.1 PUBLIC WORKS

According to [7], the Public Works may be performed directly or indirectly, and may be performed directly, when the work is done by the Administration's own body or entity, by its own means, or indirect, when the work is contracted by third parties through bidding.

Every Public Work that passes its execution to third parties, must contract them through bidding. In order to start bidding for a Public Work, a preliminary study must be done, aiming to identify the needs and resources to be used that wisely meet the analyzed project, thus avoiding the waste of public spending. In the preliminary bidding phase, a needs program, a feasibility study and a preliminary draft should be followed.

So, with a preliminary study well done can move to the new phase of bidding and start preparations for hiring competitors that will give the best proposal for Administration.

According to Law No. 8,666 / 1993, the bidding process begins with the opening of an administrative proceeding, duly assessed, filed and numbered, which contains the respective authorization, the brief indication of its object and the origin of the own resource for the expense.

In this phase, all the documents that were predisposed in the bidding process and according to the case law of TCU (2014) should be added. Figure 1.

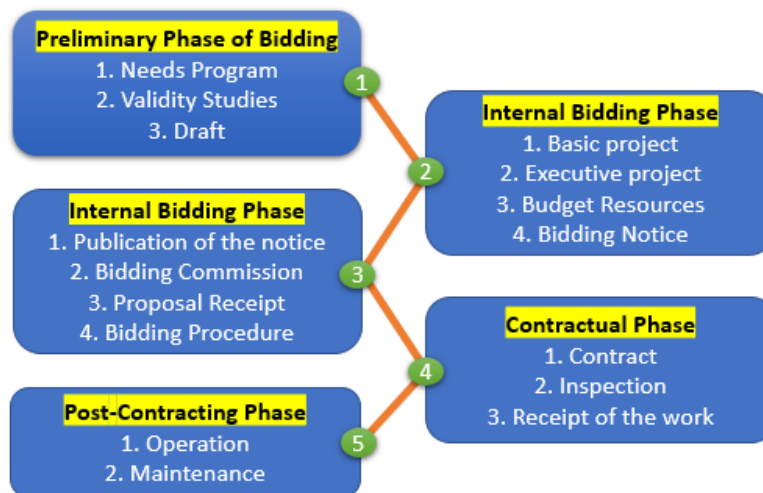


Figure 1: Bidding Steps.
Source: [7].

II.3.2 MAJOR IRREGULARITIES IN PUBLIC WORKS

Regarding the bidding procedure, [7] discriminates as factors of irregularities: Unnecessary restrictive requirements in the notice, especially regarding the technical qualification of the company's technical and operational technicians; Lack of global and unit price acceptability criteria in the bidding notice; Inadequate or incomplete basic project, without the necessary and sufficient elements to characterize the work, not approved by the competent authority, and / or prepared after the bidding process;

Incompatible bidding method; • work not divided into parcels with a view to making better use of available market resources and increasing competitiveness;

II.3.3 BONUSES AND INDIRECT EXPENSES

According to [8], BDI is a rate that is added to the cost of a work to cover the builder's indirect expenses, plus the venture's risk, the financial expenses incurred, the taxes on the operation, any selling expenses, the entrepreneur's profit and its result is the result

of a mathematical operation based on objective data involved in each work.

In public or private tenders, the company may use historical data from the financial statements regarding the expenses of its headquarters as the closest parameter to reality for the calculation of the BDI rate, choosing to include or exclude certain expenses according to the evaluation of risks of the venture in which it will participate and taking into account the strategic interests of your company when presenting a particular business proposal.

In establishing the rates corresponding to each of the components of BDI, Management has a duty to justify their origin according to the different types and sizes of works and to analyze the qualification and structure of the companies participating in a bidding process.

The BDI adopted by the Administration for the calculation of the estimated budget should be considered only as an evaluation parameter to obtain the reference value for judging the bid by the Bid Judging Committee.

III. MATERIALS AND METHODS

For the elaboration of these articles, two distinct public works budgets will be evaluated, performing an analysis of the methodology used in its budget, and evaluating wrong elements in the budget and their possible consequences.

For the analysis of each of the two works, we evaluated the budget spreadsheet provided by the agency, with the respective quantities, prices and cost reference date, and compared the difficulties encountered in the execution, the actual cost spreadsheet, and to visible design failures, listing and, through corrective calculations, set the ideal bid price for the venture.

Table 1: Carauari Synthetic Budget Worksheet.

Item	Code	Bank	Description	Unt	Amou.	Value Unit	Value Unit BDI	Total
1			WORK ADMINISTRATION					77.968,32
1.1	93565	SINAPI	JUNIOR CIVIL ENGINEER WITH ADDITIONAL CHARGES	MES	3	14.038,25	17.676,96	53.030,88
1.2	94295	SINAPI	MASTER WORKS WITH ADDITIONAL CHARGES	MES	3	6.601,40	8.312,48	24.937,44
3			ROOF					543,87
3.1	94231	SINAPI	RUFO IN GALVANIZED STEEL PLATE NUMBER 24, 25 CM CUT, INCLUDED VERTICAL TRANSPORT. AF_06 / 2016	M	16,75	25,79	32,47	543,87
						Total without BDI		62.350,93
						BDI Total		16.161,26
						Grand total		78.512,19

Source: Authors, (2019).

This total of R \$ 78,512.19 is not included in the amount offered to bidders, negatively impacting the final profitability of the work, or making the project unfeasible.

For this venture, there was also a considerable financial gap, as there was a delay in on lending for the beginning of the work, only allowing it to be completed in July 2019.

The National Index of Civil Construction allows to evaluate the evolution or reduction of the base costs for

IV. RESULTS

IV.1 WORK 01: CONSTRUCTION OF THE BRAZILIAN NAVY OPERATIONS CENTER IN CARAUARI, RORAIMA.

Job Description: Work in Simple Structure of Reinforced Concrete and Fence in Masonry, totaling 186 square meters of built area, built in the municipality of Carauari, Roraima state.

Budget Reference Technical Date: November 2018.

Expected Time: 90 Days

At the Basic Unit Cost for the delivery period, a preliminary cost estimate would have been made, considering the project as R\$ 11,737.54 Standard Residential Standard.

The total value, considering the built area for the execution of the work, is **R\$ 338.820,30**.

The budget presented by the public administration was R\$ 242,975.99, considering a BDI of 28.35%.

Of course, in order for the bidder to be competitive in bidding, a discount must be provided.

Table 01 below provides elements necessary for the proper execution of the project, but were not included in the initial version of the budget.

Considering that this is a budget prepared by a corps of naval officers, a considerable degree of technical support is assumed by the budget team, however, a requirement present in the edict was not included in the worksheet: a Civil Engineer and a Contractor Hired by the Company in compliance with the SINAPI price for the period, there is the following table of complements:

construction, allowing to determine financial losses resulting from the late delivery of works. For the period, between November 2018 and June 2019, there is an accumulated cost growth of 2.19%.

Thus, the analysis showed that the venture, unless the necessary additives are made to compensate the administrative costs, is in a state of economic unfeasibility.

IV.2 WORK 02: CONSTRUCTION OF SUPPORT POINT FOR MOTOTAXISTS IN THE CITY OF CAREIRO CASTANHO, AMAZONAS.

Job Description: mixed use building construction, The work comprises the construction of masonry building, having a total area of 416.95m², having the following characteristics: Built area of 195.00m²; in masonry with ceramic block and cover with aluminum tiles, featuring 221.95 m² of parking.

Budget Reference Technical Date: October 2018.

Expected Time: 150 Days.

At the Basic Unit Cost for the period, a preliminary cost estimate would have been considered, considering the project as R\$ 1 Standard Residential, R\$ 1,875.02/m².

The total amount, considering the constructed area for the execution of the work, is R\$ 348,753.72.

The budget presented by the public administration was R\$ 273,028.80, considering a BDI of 25.92%. Table 02 below shows items required by the basic project not included in the quantitative worksheet provided by the municipal administration.

Table 2: Careiro Brown Synthetic Budget Worksheet.

Item	Code	Bank	Description	Unt	Amou.	Value Unit	Value Unit BDI	Total
1			WORK ADMINISTRATION					141.619,45
1.1	93565	SINAPI	JUNIOR CIVIL ENGINEER WITH ADDITIONAL CHARGES	MONTH	5	14.725,12	18.899,69	94.498,45
1.2	94295	SINAPI	MASTER WORKS WITH ADDITIONAL CHARGES	MONTH	5	7.342,58	9.424,20	47.121,00
4			ROOF					11.209,84
4.1	94213	SINAPI	STEEL / ALUMINUM TILE ROOF E = 0.5 MM, WITH UP TO 2 WATERS, INCLUDING LIFTING. AF_06 / 2016	m ²	197,6	44,20	56,73	11.209,84
9			PAINTING					5.789,52
9.1	88497	SINAPI	LAX MASS APPLICATION AND SANDING ON WALLS, TWO HANDS. AF_06 / 2014	m ²	452,66	9,97	12,79	5.789,52
						Total without BDI		123.585,44
						BDI Total		35.033,37
						Grand total		158.618,81

Source: Authors, (2019).

In this particular budget, there have been considerable budget failures. In addition to the local administration, ignored in the spreadsheet, services such as Roofing and Wall Cracking were not contemplated. Thus, the work is already partially unfeasible, if there is not an additive of the services and a revision of the bid scope.

In relation to the National Index of Construction, the loss rate due to monetary inflation is 2.19%.

V. FINAL CONSIDERATIONS

Within the scope and initial premise of the paper, to observe possible budget failures pointed out by the public administration in two case studies, it was possible to verify a considerable lag in the presented budget.

In relation to the work 01, it was possible to observe a disagreement between the requirements of public notice, that demanded a constant presence of the local administration, and the one presented in the spreadsheet.

Work 01 also presented a financial gap, as the delay in the transfers between the government and the construction company causes financial loss to the bidder due to the increase in the base price of the inputs.

In practice, construction companies do not hire their engineers under the CREA wage floor, nor do they bear their labor costs, so that the cost presented in this work can be mistakenly ignored by both the bidder and a colluding public administration.

Work 02 presented the same flaw in not considering the costs of local administration, and also presented several flaws in scope by not including in the budget mask services necessary for the execution of the project.

By analyzing both cases, it was possible to verify the lack of adequacy of the budget spreadsheet to the scope demanded by the edict through the basic project presented. No compensation mechanisms were identified for financial loss due to delays in management transfers, and these elements strongly indicate the lack of technical quality and the correctness of budgets provided by the government.

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