A Dataset of Public Procurement Auction Results from Brazil's ComprasNet Platform (2003–2023)

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Abstract

This paper presents an open dataset of public procurement auctions from Brazil's Compras.gov.br platform (formerly ComprasNet), spanning the years 2003 to 2023. The dataset comprises 170,096 auction records, 1,365,244 auctioned item records, 9,304,097 participant records, and 740,581 commitment records. It is accompanied by unofficial English documentation and basic usage examples to facilitate accessibility. Hosted on GitHub, the dataset is designed to support reproducibility and foster research across various domains focused on public procurement via reverse auctions.

Introduction

Procurement is a fundamental economic activity that drives demand for goods and services across both public and private sectors worldwide. According to World Bank estimates,[1] public procurement accounts for approximately 12% of global GDP.[2] Despite its economic significance, access to procurement data remains limited. In recent years, digitalization has fostered increased transparency through the implementation of electronic procurement systems. Countries such as Brazil (**Compras.gov.br**), Ukraine (**ProZorro**), Chile (**ChileCompra**), and India (**Government eMarketplace (GeM)**) exemplify this transformation.

This paper focuses on one such initiative: nearly a decade's worth of procurement auction data from Brazilian federal government purchases.

Compras.gov.br (formerly *ComprasNet*) is the official electronic procurement platform of the Brazilian federal government, developed and maintained by the Ministry of Management and Innovation in Public Services. It functions as a centralized system for conducting public procurement through various modalities—most notably, electronic reverse auctions (*Pregão Eletrônico*), which are the predominant procurement method in Brazil. The platform provides end-to-end support for procurement processes, including tender publication, supplier registration, bid submission, auction conduction, and contract award. By making procurement opportunities and outcomes publicly accessible, the system promotes transparency, efficiency, and competition. Through its interface, users can access detailed information on procurement notices, bidding outcomes, supplier participation, and prices paid.

The goal of this paper is to highlight the availability and analytical potential of procurement data from Brazilian platforms such as the **Portal de Compras do Governo Federal**[3] and **Compras.gov.br**.[4] Table 1 summarizes the dataset made available for this research: four CSV files covering procurement auctions, participating bidders, auctioned items, and related financial commitments, totaling approximately 2.5 GB in size.

CSV File	Number of Records	Number of Features	File Size
Licitações (Procurement Auctions)	170,096	17	74MB
Itens (Auctioned Goods and Services)	1,365,244	14	297MB
Participantes (Auction Participants)	9,304,097	13	1.9GB
Empenhos (Related Commitments)	740,581	10	180MB

Table 1: Summary of Datasets

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[1] OECD panel data [Accessed 5 May 2025]
[2] World Bank study [Accessed 5 May 2025]
[3] URL to Portal de Compras do Governo Federal [Accessed 5 May 2025]
[4] URL to Compras.gov.br [Accessed 5 May 2025]

Data Collection

To the best of our knowledge, there are two primary methods for interacting with the Brazilian government's public procurement infrastructure. The first is through its official Application Programming Interface (API),[5] which, while promising, appears to be under active development and may experience occasional instability. The second method involves either manually downloading procurement records from the **Portal da Transparência**[6] or using its associated API.[7].

For this study, we collected the dataset via web scraping from the Portal da Transparência website.

Data Overview

The dataset shared in this paper is presented in its original form, with minimal preprocessing. We excluded government purchases conducted under procurement modalities other than electronic procurement auctions. No entries were removed due to missing values, as doing so would require assumptions and justifications beyond the scope of this paper.

To assist potential users unfamiliar with the Portuguese language, we translated the column names and provided descriptions based on the official data dictionary.[8] These are summarized in Tables 4, 3, 5, and 2 in the Appendix.

Data Availability & Examples

The complete dataset is publicly available in the GitHub repository: *A Dataset of Public Procurement Auction Results from Brazil's ComprasNet Platform (2003–2023)*. The repository also includes an `examples` directory, which provides illustrative scripts and use cases to help users navigate and analyze the data.

Usage Notes

Released under the **Creative Commons Attribution 4.0** license, the dataset is free to use, adapt, and share, provided proper credit is given and changes are indicated.

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[5]Overview of API and documentation [Accessed 5 May 2025]

[6]Portal da Transparência Downloads [Accessed 5 May 2025]

[7]Portal da Transparência API Documentation [Accessed 5 May 2025]

[8]Translations are based on the official data dictionary available at Data Dictionary in original language [Accessed 5 May 2025]

Appendix

This section provides detailed descriptions of the dataset's features, including translated column names (unofficial), data types, and completeness levels. The information is intended to help users understand the structure of the data extracted from the Brazilian government's procurement systems.

Feature (PT)	Description (EN)	Completeness	Data Type
Número Licitação	Number that identifies the bidding in SIASG	100%	int64
Código UG	Code of the Management Unit responsible for the bidding	100%	int64
Nome UG	Name of the Management Unit	100%	object
Código Modalidade Compra	Code of the Purchase Mode	100%	int64
Modalidade Compra	Type of purchase process	100%	object
Número Processo	Number of the bidding process	99.9%	object
Código Empenho	Code of the bidding commitment	100%	object
Data Emissão Empenho	Date of issuance of the commitment	88.11%	object
Observação Empenho	Observation/note of the commitment	100%	object
Valor Empenho (R$)	Value of the commitment in Brazilian Reais	100%	object

Table 2: Detailed Info: Empenhos (Related Commitments)

Feature (PT)	Description (EN)	Completeness	Data Type
Número Licitação	Number that identifies the bidding in SIASG	100%	int64
Código UG	Code of the Management Unit responsible for the bidding	100%	int64
Nome UG	Name of the Management Unit	100%	object
Código Modalidade Compra	Code of the Purchase Mode	100%	int64
Modalidade Compra	Type of purchase process	100%	object
Número Processo	Number of the bidding process	100%	object
Código Órgão	Code of the agency responsible for the bidding	100%	int64
Nome Órgão	Name of the agency	100%	object
Código Item Compra	Code of the item in SIASG (6 digits code + 5 digits mode + 5 digits number + year + 5 digits sequential)	98.95%	object
Descrição	Description of the item in SIASG	100%	object
Quantidade Item	Quantity of the item	100%	int64
Valor Item	Total value of the item	100%	object
Código Vencedor	CNPJ of the winning bidder	100%	object
Nome Vencedor	Name of the winning CNPJ	100%	object

Table 3: Detailed Info: Items (Auctioned Goods and Services)

Feature (PT)	Description (EN)	Completeness	Data Type
Número Licitação	Number that identifies the bidding in SIASG	100%	int64
Código UG	Code of the Management Unit responsible for the bidding	100%	int64
Nome UG	Name of the Management Unit	100%	object
Código Modalidade Compra	Code of the Purchase Mode	100%	int64
Modalidade Compra	Type of purchase process	100%	object
Número Processo	Number of the bidding process	100%	object
Objeto	What is being purchased, sold, or leased	100%	object
Situação Licitação	Current status of the bidding process	100%	object
Código Órgão Superior	Code of the superior agency responsible for the bidding	100%	int64
Nome Órgão Superior	Name of the superior agency	100%	object
Código Órgão	Code of the agency responsible for the bidding	100%	int64
Nome Órgão	Name of the agency	100%	object
UF	Brazilian state abbreviation	100%	object
Município	City where the bidding takes place	100%	object
Data Resultado Compra	Date of publication of the Homologation in the Official Gazette	100%	object
Data Abertura	Date for submitting proposals	99.98%	object
Valor Licitação	Total bid value	100%	object

Table 4: Detailed Info: Licitações (Procurement Auctions)

Feature (PT)	Description (EN)	Completeness	Data Type
Número Licitação	Number that identifies the bidding in SIASG	100%	`int64`
Código UG	Code of the Management Unit responsible for the bidding	100%	`int64`
Nome UG	Name of the Management Unit	100%	`object`
Código Modalidade Compra	Code of the Purchase Mode	100%	`int64`
Modalidade Compra	Type of purchase process	100%	`object`
Número Processo	Number of the bidding process	100%	`object`
Código Órgão	Code of the agency responsible for the bidding	100%	`int64`
Nome Órgão	Name of the agency	100%	`object`
Código Item Compra	Code of the item in SIASG	100%	`object`
Descrição Item Compra	Description of the item in SIASG	100%	`object`
Código Participante	CNPJ of the bidding participant	100%	`object`
Nome Participante	Name of the participant's CNPJ	100%	`object`
Flag Vencedor	Indicates if the participant is the winner ("SIM" or "NÃO")	100%	`object`

Table 5: Detailed Info: Participantes (Auction Participants)