Replication package

- MiDES: New Data and Facts from Local Procurement and Budget Execution in Brazil*

Overview

The code in this replication package constructs the analysis files from data provided by State Audit Courts (TCEs). Two master files execute all programs, one for Python scripts and the other for R scripts.

Requirements

- Access to Google Cloud Platform and the `basedosdados-dev` project.
- Conda
- R 4.3 and RStudio

Reproducing the environments

Python

1. Open the terminal and navigate to this folder
2. Create a new environment named "mides" with `conda env create --name mides --file meta/requirements.txt`
3. Run `conda activate meta` to activate the new environment. Always make sure to have this environment activated before running any Jupyter notebook or Python script of this project

R

1. Open the RStudio project file `data-paper.Rproj`
2. On the RStudio window that will open, open the script `master.R`
3. Lines 35-38 reproduce the environment of this project. They should only be run the first time the code runs. Note that running the entire script `master.R` will not only reproduce the environment but run all the code as well.

Running the code

Python

1. Activate the environment named "mides"
2. Run the notebook `master.ipynb` on the activated environment

R

1. Open the RStudio project `data-paper.Rproj`
2. Run `master.R` while the project is active on RStudio

Runtime Requirements

Approximate time needed to reproduce the analyses on a standard 2023 machine:
8 minutes

List of tables and programs

The provided code reproduces:

- [ ] All numbers provided in text in the paper
- [ ] All tables and figures in the paper
- [x] Selected tables and figures in the paper, as explained below.

Figures	Label	File
1	Figure 1: Coverage of procurement and budget execution data	`Manually Created`
2	Figure 2: Example of procurement and budget execution process	`Manually Created`
3	Figure 3: Validation with SICONFI data - commitment	`validation_siconfi_execution.ipynb`
4	Figure 4: Validation with SICONFI data - verification	`validation_siconfi_execution.ipynb`
5	Figure 5: Validation with SICONFI data - payment	`validation_siconfi_execution.ipynb`
6	Figure 6: Distribution of share of local suppliers across different states	`home_bias_firms_characteristics.ipynb`
7	Figure 7: Distribution of share of local suppliers, by type of purchase	`home_bias_firms_characteristics.ipynb`
8	Figure 8: Distribution of share of local suppliers, by population size	`home_bias_firms_characteristics.ipynb`
9	Figure 9: Distribution of payment delays at municipality-year level	`fig_and_reg_delay_payment.R`
10	Figure 10: Weighted average payment delay (days)	`delay_payment_maps.ipynb`
11	Figure 11: Scatter plot - Average payment delay vs. GDP per capita	`fig_reg_delay_payment.R`
A1	Figure A1: Validation with SICONFI data: commitment phase, by function	`validation_siconfi_execution.ipynb`

Figures	Label	File
A2	Figure A2: Validation with SICONFI data: verification phase, by function	`validation_siconfi_execution.ipynb`
A3	Figure A3: Validation with SICONFI data: payment phase, by function	`validation_siconfi_execution.ipynb`
A4	Figure A4: Validation with SICONFI data across years - payment	`validation_siconfi_execution.ipynb`
A5	Figure A5: Share of payments paid over 30 days (%)	`delay_payment_maps.ipynb`
A6	Figure A6: Distribution of share of late payments (over 30 days)	`fig_and_reg_delay_payment.R`
A7	Figure A7: Histogram of share of non-competitive tenders	`example_paper.R`
B1	Figure B1: Missing tender identifiers	`null_ids.ipynb`
B2	Figure B2: Missing commitment identifiers	`null_ids.ipynb`
B3	Figure B3: Missing verification identifiers	`null_ids.ipynb`
B4	Figure B4: Missing payment identifiers	`null_ids.ipynb`
B5	Figure B5: Missing municipalities: procurement	`missing_municipalities.ipynb`
B6	Figure B6: Missing municipalities: budget execution	`missing_municipalities.ipynb`
B7	Figure B7: Number of municipalities: commitment	`total_municipalities.ipynb`
B8	Figure B8: Number of municipalities: verification	`total_municipalities.ipynb`
B9	Figure B9: Number of municipalities: payment	`total_municipalities.ipynb`

Tables	Label	File
1	Table 1: Procurement and budget execution coverage	`Manually Created`
2	Table 2: Descriptive statistics - public procurement	`descriptive_statistics_procurement.ipynb`
3	Table 3: Descriptive statistics - budget execution	`descriptive_statistics_execution.ipynb`

Tables	Label	File
4	Table 4: Correlates of deviations	`fig_and_reg_delay_payment.R`
5	Table 5: Correlates of payment delays	`fig_and_reg_delay_payment.R`
A1	Table A1: Procurement and budget execution sources	`Manually Created`
A2	Table A2: Procurement methods	`Manually Created`
B1	Table B1: Limitations in the budget execution data	`Manually Created`
B2	Table B2: Limitations in the procurement data	`Manually Created`