

Table 1: Corruption Infraction Codes

| Code #                | Code Description   |
|-----------------------|--|
| Procurement           |  |
| (04)                  | Public tender was not publicized.                            |
| (05)                  | Tender winner presented forged price estimates.              |
| (06)                  | Shell companies have participated in tender.                 |
| (08)                  | Tender documentation was forged.                             |
| (09)                  | Tender participant received special treatment.               |
| (30)                  | Wrong category was applied.                                  |
| (31)                  | Tender was incorrectly dismissed.                            |
| Private Appropriation |  |
| (11)                  | Good/service was overpriced.                                 |
| (12)                  | Supplier used forged receipts to claim payments.             |
| (13)                  | Payments were unaccompanied by receipts.                     |
| (14)                  | Payments made to parties unrelated to policy implementation. |

Source: CEPESP-FGV. All other codes available in **appendix B**.

Table 2: Number of Municipal Audits by Ministry

|           | Health |     |       |
|-----------|--------|-----|-------|
|           | No     | Yes | Total |
| Education | No     | 0   | 65    |
|           | Yes    | 34  | 1040  |
|           | Total  | 34  | 1105  |

Source: CGU and CEPESP-FGV. The total across rows and columns is equivalent to the number of municipalities in the sample.

Table 3: Procurement Categories

|            | Type               | Goods/Services Purchases |                     | Public Works       |                     |
|------------|--------------------|--------------------------|---------------------|--------------------|---------------------|
|            |                    | <i>Lower Bound</i>       | <i>Higher Bound</i> | <i>Lower Bound</i> | <i>Higher Bound</i> |
| Category 0 | Direct contracting | -                        | R\$ 8,000           | -                  | R\$15,000           |
| Category 1 | Invitational       | R\$ 8,000.01             | R\$ 80,000          | R\$15,000.01       | R\$15,000           |
| Category 2 | Price Comparison   | R\$ 80,000.01            | R\$ 650,000         | R\$150,000.01      | R\$1,500,000        |
| Category 3 | Competitive        | R\$ 650,000.01           | -                   | R\$1,500,000.01    | -                   |

Source: Law 8,666/93. These values were in place between 1998 and 2018, when they have been adjusted for inflation over the same time period. Our sample covers federal transfers between 2001 and 2010, therefore it is unaffected by this change.

Table 4: Descriptive Statistics

| <i>Panel A: Service Order Level</i>                        |          |         |           |        |          |          |             |
|--|----------|---------|-----------|--------|----------|----------|-------------|
|  | <i>N</i> | Mean    | St. Dev.  | Min    | Pctl(25) | Pctl(75) | Max         |
| Amount<br>(in R\$)   | 9,593    | 449,858 | 3,060,374 | 65     | 36,000   | 204,721  | 236,198,658 |
| Infraction Count   | 9,593    | 2.398   | 2.172     | 0      | 1        | 3        | 18          |
| Corruption Indicator I<br>(Binary)                         | 9,593    | 0.398   | 0.489     | 0      | 0        | 1        | 1           |
| Corruption Indicator II<br>(Share of Total Infractions)    | 9,593    | 0.195   | 0.294     | 0      | 0        | 0.3      | 1           |
| Corruption Indicator III<br>(Amount)                       | 9,593    | 125,695 | 954,252   | 0      | 0        | 29,427   | 49,282,832  |
| Mismanagement Indicator I<br>(Binary)                      | 9,593    | 0.746   | 0.435     | 0      | 0        | 1        | 1           |
| Mismanagement Indicator II<br>(Share of Total Infractions) | 9,593    | 0.619   | 0.407     | 0      | 0        | 1        | 1           |
| Mismanagement Indicator III<br>(Amount)                    | 9,593    | 268,168 | 2,618,568 | 0      | 0        | 122,000  | 236,198,658 |
| <i>Panel B: Municipal Level</i>                            |          |         |           |        |          |          |             |
|  | <i>N</i> | Mean    | St. Dev.  | Min    | Pctl(25) | Pctl(75) | Max         |
| Urban Population (Share)                                   | 1,139    | 0.642   | 0.221     | 0.042  | 0.476    | 0.826    | 1           |
| Female (Share)   | 1,139    | 0.505   | 0.015     | 0.461  | 0.495    | 0.512    | 0.658       |
| Illiteracy Rate  | 1,139    | 0.168   | 0.099     | 0.016  | 0.083    | 0.254    | 0.428       |
| GDP per capita   | 1,139    | 11,890  | 11,696    | 2,463  | 5,046    | 14,749   | 153,770     |
| Gini Index   | 1,139    | 0.512   | 0.066     | 0.318  | 0.469    | 0.555    | 0.783       |
| Human Development Index                                    | 1,139    | 0.654   | 0.072     | 0.469  | 0.592    | 0.714    | 0.862       |
| Poverty Rate   | 1,139    | 0.250   | 0.184     | 0.003  | 0.078    | 0.404    | 0.755       |
| Presence of AM Radio                                       | 1,139    | 0.237   | 0.425     | 0      | 0        | 0        | 1           |
| Education Council Established                              | 1,139    | 0.781   | 0.413     | 0      | 1        | 1        | 1           |
| Health Council Established                                 | 1,139    | 0.969   | 0.173     | 0      | 1        | 1        | 1           |
| Seat of Judiciary Branch                                   | 1,139    | 0.514   | 0.500     | 0      | 0        | 1        | 1           |
| Vote Margin  | 1,139    | 0.168   | 0.188     | -0.046 | 0.047    | 0.211    | 1           |
| Mayor Reelection Rate                                      | 1,139    | 0.293   | 0.451     | 0      | 0        | 1        | 1           |

Sources: CGU, CEPESP-FGV, IBGE, and TSE. Panel A contains variables measured at the service order level coded by CEPESP-FGV straight out of CGU audit reports, including the six corruption and mismanagement outcomes. Panel B contains covariates at the municipal level measured in 2010 by the Brazilian Office of Statistics (IBGE) and electoral data from the Electoral Court (TSE) for municipal elections in 2000, 2004, and 2008. 1.8% of the two election covariates had missing values and were recoded to the overall mean as per Donald Green's lab Statement of Purpose.

Table 5: Corruption Determinants in Brazilian Municipalities

|                         | <i>Dependent variable:</i>            |           |   |           |   |            |
|-------------------------|---------------------------------------|-----------|---|-----------|---|------------|
|                         | Corruption<br>Indicator I<br>(Binary) |           | Corruption<br>Indicator II<br>(Share of Total<br>Infractions) |           | Corruption<br>Indicator III<br>(Amount) |            |
|                         | (1)                                   | (2)       | (3)   | (4)       | (5)                                     | (6)        |
| Amount                  | 0.000***                              | 0.000***  | 0.000***  | 0.000***  | .451***                                 | .452***    |
| (in R\$)                | (0.000)                               | (0.000)   | (0.000)   | (0.000)   | (.077)                                  | (.078)     |
| Amount                  | -0.000*                               | -0.000**  | -0.000**  | -0.000**  | -0.000***                               | -0.000***  |
| (in R\$, Squared)       | (0.000)                               | (0.000)   | (0.000)   | (0.000)   | (0.000)                                 | (0.000)    |
| Municipal Corruption    | 1.079***                              | .812***   | .546***   | .423***   | 130,305                                 | 174,681    |
|                         | (.156)                                | (.157)    | (.083)  | (.086)    | (95,773)                                | (110,873)  |
| Municipal Corruption    | -1.619***                             | -1.396*** | -.412**   | -.327*    | -109,920                                | -178,577   |
| (Squared)               | (.314)                                | (.288)    | (.184)  | (.175)    | (200,521)                               | (200,739)  |
| Procurement Type 1      | .086***                               | .114***   | .035**  | .046***   | -11,702***                              | -2,273     |
|                         | (.027)                                | (.027)    | (.015)  | (.015)    | (3,810)                                 | (7,903)    |
| Procurement Type 2      | .162***                               | .205***   | .064***   | .079***   | -63,758***                              | -39,176*   |
|                         | (.028)                                | (.029)    | (.016)  | (.016)    | (20,663)                                | (20,434)   |
| Procurement Type 3      | .174***                               | .188***   | .040**  | .046**    | -381,097                                | -353,389   |
|                         | (.036)                                | (.034)    | (.020)  | (.020)    | (233,558)                               | (223,038)  |
| Municipal Controls      | -                                     | Yes       | -   | Yes       | -                                       | Yes        |
| Ministry Fixed-Effects  | -                                     | Yes       | -   | Yes       | -                                       | Yes        |
| Lottery Fixed-Effects   | -                                     | Yes       | -   | Yes       | -                                       | Yes        |
| Observations            | 9,593                                 | 9,593     | 9,593   | 9,593     | 9,593                                   | 9,593      |
| Adjusted-R <sup>2</sup> | .034                                  | .074      | .036  | .052      | .551                                    | .551       |
| F Statistic             | 48.926***                             | 17.992*** | 52.371***   | 12.606*** | 1,680***                                | 262.439*** |

Notes: This table reports the relationship between the (new) corruption determinants in the context of Brazilian municipalities. Corruption Indicator I (columns 1-2) is a binary variable turning on when the procurement call has at least one corruption infraction. Corruption Indicator II (columns 3-4) is the share of corruption infractions over all infractions for any single procurement call. Corruption Indicator III (columns 5-6) is the share of corruption infractions over all infractions times the procurement amount. Municipal corruption is computed by aggregating indicator II at the municipal level; it summarizes the relationship between the corruption level at each procurement call vs. overall municipal corruption. Municipal controls are summarized in table 4 and control for other variables that are associated with individual corruption decisions. Robust standard errors are clustered at the municipal level and are reported in parentheses.

\*p<.1; \*\*p<.05; \*\*\*p<.01

Table 6: Bandwidth Choice (in R\$)

| Cutoff | Purchases |               | Public Works |               |
|--------|-----------|---------------|--------------|---------------|
|        | Amount    | Range         | Amount       | Range         |
| 1      | 8,000     | $\pm 3,839$   | 15,000       | $\pm 6,269$   |
| 2      | 80,000    | $\pm 30,085$  | 150,000      | $\pm 46,798$  |
| 3      | 650,000   | $\pm 216,058$ | 1,500,000    | $\pm 773,044$ |

Notes: All values have been rounded to zero decimal cases. The ranges have been determined by the average bandwidth across all six outcomes using the optimal bandwidth selection from Calonico et al. (2014, 2015); Cattaneo et al. (2016).

## References

- Calonico, S., Cattaneo, M. D., and Titiunik, R. (2014). Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs. *Econometrica*, 82(6):2295–2326.
- Calonico, S., Cattaneo, M. D., and Titiunik, R. (2015). Optimal Data-Driven Regression Discontinuity Plots. *Journal of the American Statistical Association*, 110:1753–1769.
- Cattaneo, M. D., Keele, L., Titiunik, R., and Vazquez-Bare, G. (2016). Interpreting Regression Discontinuity Designs with Multiple Cutoffs. *The Journal of Politics*, 78(4):1229–1248.