

## Appendix A: Variable Definitions

- **Competition:** Number of offers/bids received in response to the solicitation of the project.
- **Cost overrun:** Difference in dollars between the final cost of a project and the initial estimate of its budget (i.e., *project budget*).
- **Delay time:** Difference in days between the estimated initial completion date of the project and the effective (i.e., eventual) completion date.
- **Employees:** Number of employees on the contractor's payroll.
- **Experience:** Number of contracts that the contractor previously signed with a given federal contracting agency across all of *USASpending*.
- **LATE:** Local average treatment effect.
- **Midwest:** An indicator variable equal to one if the principal place of performance of a project is in the midwest region of the United States (the definition of region follows the United States Census Bureau).
- **Multiyear:** An indicator variable equal to one if the project is managed using a multiyear contract.
- **Northeast:** An indicator variable equal to one if the principal place of performance of a project is in the northeast region of the United States.
- **Overseas:** An indicator variable equal to one if the principal place of performance of a project is outside the United States.
- **Performance-based:** An indicator variable equal to one if the project received performance-based incentives.
- **Project budget:** Initial estimate of the project budget, in dollars.
- **Revenue:** Annual gross revenue (in millions of dollars) of the project's contractor, taken from an average of the last three years.
- **South:** An indicator variable equal to one if the principal place of performance of a project is in the south region of the United States.
- **Time-and-materials:** An indicator variable equal to one if the type of payment of the contract is time-and-materials.
- **West:** An indicator variable equal to one if the principal place of performance of a project is in the western region of the United States.
- **Work length:** Number of days from the starting date of the project until the estimated initial completion date.

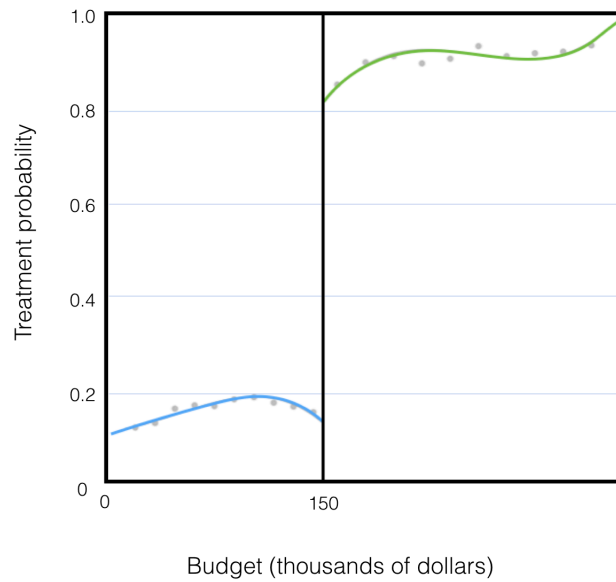
## Appendix B: Additional tables and figures

Table 16 displays regression results for the first-stage estimates in the base estimates from Section 7. Column I does not include any fixed effects, while Column II reports estimates that include fixed effects at the task and agency level. Figure 4 maps the probability of receiving treatment (i.e., treatment propensity) as a function of the project's anticipated budget. Table 17 presents summary statistics. Due to space constraints, we do not include statistics for some of some categorical variables (example: task category) because of the large number of categories found within.

| Specification                       | I                             | II                            |
|-------------------------------------|-------------------------------|-------------------------------|
| $\mathbb{1}\{b_p > \text{SAT}\}$    | 0.76 <sup>***</sup><br>(0.02) | 0.75 <sup>***</sup><br>(0.01) |
| <i>time-and-materials</i>           | 0.01<br>(0.11)                | 0.06<br>(0.06)                |
| <i>performance-based</i>            | 0.06<br>(0.04)                | 0.04 <sup>*</sup><br>(0.03)   |
| <i>initial work length</i>          | 0.00 <sup>**</sup><br>(0.00)  | 0.00 <sup>***</sup><br>(0.00) |
| <i>overseas</i>                     | -0.03 <sup>*</sup><br>(0.02)  | -0.04 <sup>**</sup><br>(0.02) |
| <i>midwest</i>                      | 0.03<br>(0.02)                | 0.04 <sup>**</sup><br>(0.02)  |
| <i>south</i>                        | 0.04 <sup>**</sup><br>(0.02)  | 0.04 <sup>**</sup><br>(0.02)  |
| <i>west</i>                         | 0.04 <sup>**</sup><br>(0.02)  | 0.03 <sup>*</sup><br>(0.02)   |
| <i>northeast</i>                    | 0.03<br>(0.02)                | 0.04 <sup>*</sup><br>(0.02)   |
| <i>multiyear</i>                    | 0.01<br>(0.01)                | 0.00<br>(0.01)                |
| <i>set aside</i>                    | 0.06<br>(0.06)                | 0.05<br>(0.10)                |
| <i>Davis-Bacon Act</i>              | -0.01<br>(0.01)               | -0.01<br>(0.01)               |
| <i>Walsh-Healy Act</i>              | 0.00<br>(0.01)                | 0.01<br>(0.02)                |
| <i>small business flag</i>          | 0.02<br>(0.03)                | -0.04<br>(0.07)               |
| <i>Fixed effects (task, agency)</i> | No                            | Yes                           |
| <i>Observations</i>                 | 125,721                       | 125,721                       |
| <i>R-squared</i>                    | 0.37                          | 0.52                          |

**Table 16** First-stage estimates.

The table reports the estimated coefficient values and standard errors (in parentheses) for the first-stage coefficients. All regressions include a control function of the *project budget* specified using a fourth order polynomial with different coefficients above and below the SAT. The Column II estimates include fixed effects at the agency and task category. Significance levels: 10% (\*), 5% (\*\*), and 1% (\*\*\*)



**Figure 4** Graphical discontinuity analysis mapping the probability of treatment as a function of the project budget.

| Covariates                        | Project budget $\leq$ SAT |           |          |           | Project budget $>$ SAT |           |          |           |
|-----------------------------------|---------------------------|-----------|----------|-----------|------------------------|-----------|----------|-----------|
|                                   | Untreated                 |           | Treated  |           | Untreated              |           | Treated  |           |
|                                   | Mean                      | Std.Dev.  | Mean     | Std.Dev.  | Mean                   | Std.Dev.  | Mean     | Std.Dev.  |
| <i>project budget (thousands)</i> | 27.58                     | 32.52     | 32.54    | 35.25     | 512.52                 | 659.11    | 835.86   | 1,038.09  |
| <i>experience (contracts)</i>     | 13.57                     | 20.38     | 15.24    | 30.96     | 17.41                  | 19.57     | 11.54    | 21.63     |
| <i>time-and-materials</i>         | 0.04                      | 0.16      | 0.07     | 0.25      | 0.06                   | 0.21      | 0.07     | 0.37      |
| <i>performance-based</i>          | 0.25                      | 0.43      | 0.45     | 0.50      | 0.46                   | 0.50      | 0.41     | 0.49      |
| <i>competition (bids)</i>         | 15.93                     | 3.30      | 6.39     | 8.77      | 5.39                   | 3.34      | 5.79     | 6.39      |
| <i>employees (thousands)</i>      | 14.77                     | 54.51     | 10.24    | 44.24     | 9.73                   | 43.39     | 19.12    | 55.70     |
| <i>revenue (millions)</i>         | 5.41                      | 22.40     | 3.83     | 13.60     | 3.68                   | 18.14     | 6.12     | 21.43     |
| <i>northeast</i>                  | 0.21                      | 0.41      | 0.21     | 0.40      | 0.20                   | 0.40      | 0.21     | 0.40      |
| <i>midwest</i>                    | 0.23                      | 0.42      | 0.23     | 0.42      | 0.21                   | 0.41      | 0.23     | 0.42      |
| <i>south</i>                      | 0.32                      | 0.47      | 0.32     | 0.47      | 0.33                   | 0.47      | 0.32     | 0.47      |
| <i>west</i>                       | 0.17                      | 0.38      | 0.17     | 0.38      | 0.18                   | 0.39      | 0.17     | 0.38      |
| <i>overseas</i>                   | 0.07                      | 0.26      | 0.07     | 0.26      | 0.07                   | 0.26      | 0.08     | 0.26      |
| <i>multiyear</i>                  | 0.04                      | 0.19      | 0.03     | 0.18      | 0.02                   | 0.14      | 0.04     | 0.19      |
| <i>work length (days)</i>         | 206.31                    | 217.39    | 197.68   | 241.18    | 321.48                 | 232.12    | 394.74   | 304.49    |
| <i>Delay (days)</i>               | 34.05                     | 197.24    | 39.29    | 154.40    | 60.45                  | 213.52    | 104.85   | 354.22    |
| <i>Override (dollars)</i>         | 1,005.49                  | 13,069.77 | 4,389.70 | 30,726.03 | 4,759.56               | 32,583.68 | 6,127.25 | 39,686.68 |
| <i>Davis-Bacon Act</i>            | 0.03                      | 0.18      | 0.04     | 0.20      | 0.05                   | 0.22      | 0.07     | 0.26      |
| <i>Walsh-Healy Act</i>            | 0.01                      | 0.10      | 0.02     | 0.13      | 0.005                  | 0.07      | 0.05     | 0.21      |
| <i>Small business flag</i>        | 0.01                      | 0.04      | 0.01     | 0.05      | 0.00                   | 0.04      | 0.00     | 0.06      |
| <i>Observations</i>               | 92,443                    |           | 14,198   |           | 1,279                  |           | 17,801   |           |

**Table 17** Summary statistics.