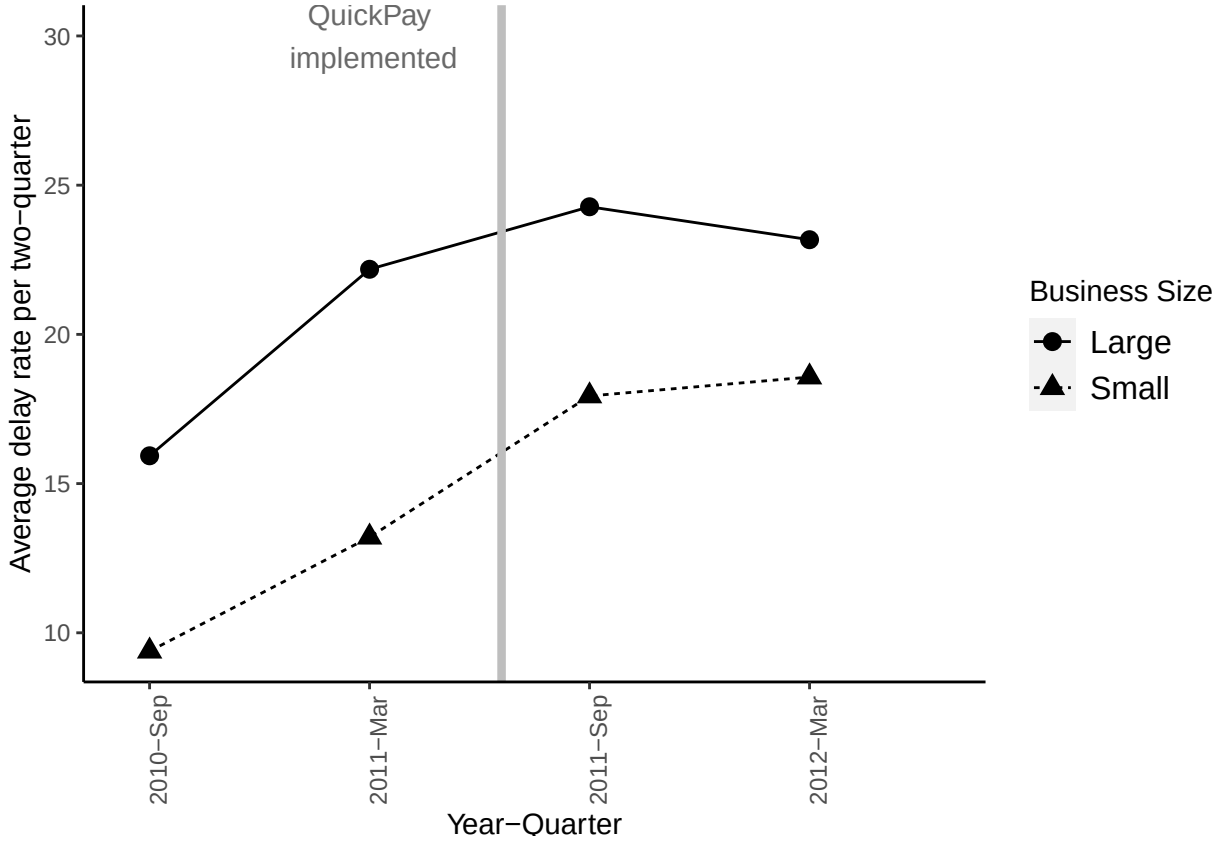
Delay Rate (Two Quarters): QuickPay (2009-2012)

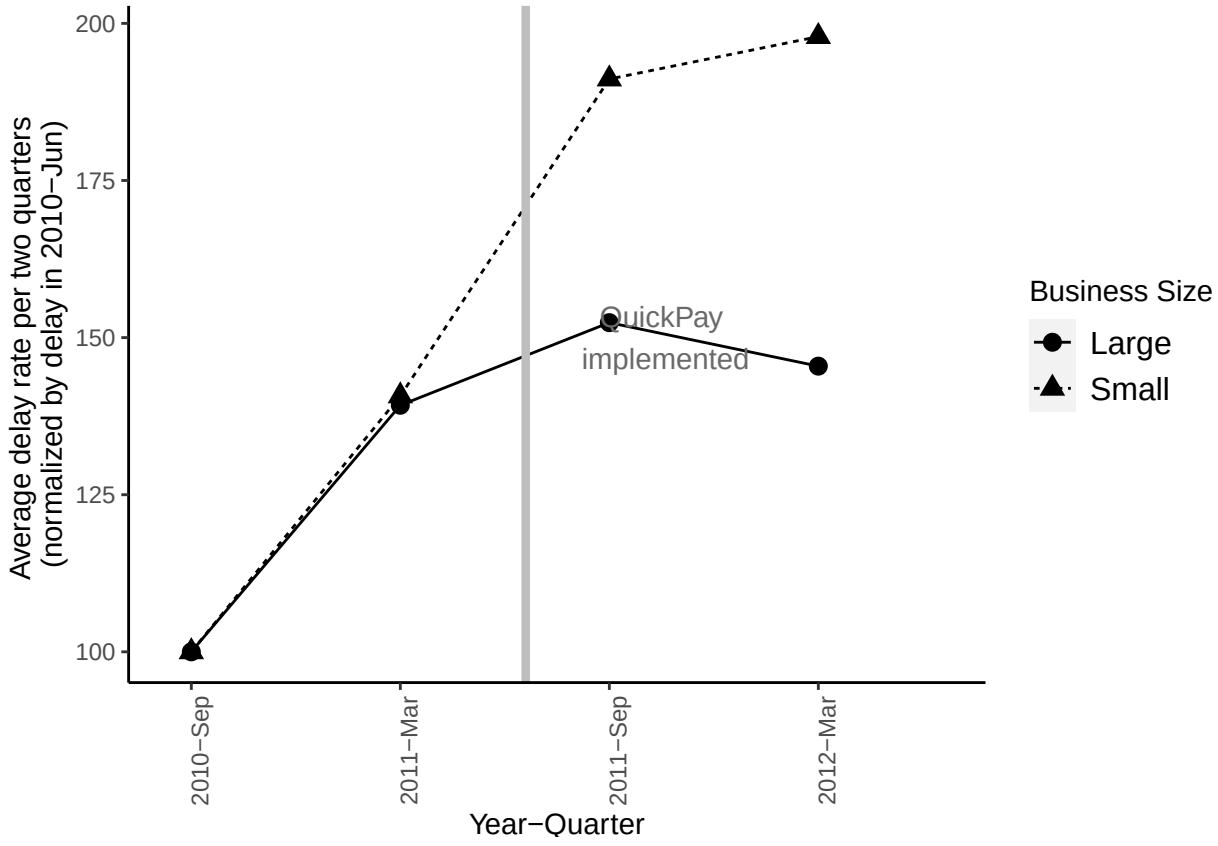
Nov 17, 2021

1 Delays over time

- Sample restricted to projects for which start dates matches the one in API
  - This is done by using first reported "action_date" and "date_signed"



1.1 Normalized delay rate



2 Full Sample Regressions

2.1 5% Winsorization

$$\begin{aligned} DelayRate_{it} = \quad & \alpha + \beta_0 Treat_i + \beta_1 Post_t + \beta_2 (Treat_i \times Post_t) \\ + \quad & X_i + (Post_t \times X_i) + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it} \end{aligned}$$

2.1.1 One Quarter

Table 1: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-3.34^{***}	-2.72^{***}	-2.70^{***}	-2.07^{***}	-1.81^{***}
	(0.15)	(0.15)	(0.15)	(0.15)	(0.35)
$Post_t$	1.02^{***}	-1.01^{***}			
	(0.15)	(0.31)			
$Treat_i \times Post_t$	1.34^{***}	1.62^{***}	1.62^{***}	1.33^{***}	1.51^{***}
	(0.19)	(0.20)	(0.20)	(0.19)	(0.21)
Constant	8.35^{***}	16.93^{***}			
	(0.12)	(0.24)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	287,530	263,488	263,488	263,488	263,488
R^2	0.004	0.05	0.06	0.09	0.17
Adjusted R^2	0.004	0.05	0.06	0.09	0.12

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

2.1.2 Two-Quarters

Table 2: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-7.99^{***}	-6.23^{***}	-6.24^{***}	-4.40^{***}	-4.00^{***}
	(0.42)	(0.43)	(0.43)	(0.44)	(1.15)
$Post_t$	4.05^{***}	-1.52			
	(0.45)	(0.93)			
$Treat_i \times Post_t$	2.57^{***}	3.36^{***}	3.37^{***}	2.64^{***}	3.25^{***}
	(0.56)	(0.59)	(0.60)	(0.59)	(0.66)
Constant	19.65^{***}	36.57^{***}			
	(0.34)	(0.67)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	122,172	111,681	111,681	111,681	111,681
R^2	0.01	0.06	0.06	0.12	0.26
Adjusted R^2	0.01	0.06	0.06	0.11	0.16

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

2.2 2.5% Winsorization

$$\begin{aligned} DelayRate_{it} = \quad & \alpha + \beta_0 Treat_i + \beta_1 Post_t + \beta_2 (Treat_i \times Post_t) \\ + \quad & X_i + (Post_t \times X_i) + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it} \end{aligned}$$

2.2.1 One Quarter

Table 3: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-5.22^{***}	-4.32^{***}	-4.30^{***}	-3.21^{***}	-2.64^{***}
	(0.23)	(0.24)	(0.24)	(0.24)	(0.56)
$Post_t$	2.22^{***}	-0.48			
	(0.24)	(0.49)			
$Treat_i \times Post_t$	2.08^{***}	2.64^{***}	2.64^{***}	2.18^{***}	2.53^{***}
	(0.30)	(0.32)	(0.32)	(0.31)	(0.34)
Constant	12.26^{***}	23.63^{***}			
	(0.19)	(0.37)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	287,530	263,488	263,488	263,488	263,488
R^2	0.004	0.04	0.04	0.07	0.14
Adjusted R^2	0.004	0.04	0.04	0.07	0.09

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

2.2.2 Two-Quarters

Table 4: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-10.70^{***}	-8.44^{***}	-8.46^{***}	-5.53^{***}	-5.31^{***}
	(0.59)	(0.62)	(0.62)	(0.63)	(1.73)
$Post_t$	6.48^{***}	-1.54			
	(0.64)	(1.32)			
$Treat_i \times Post_t$	3.59^{***}	4.99^{***}	5.01^{***}	3.84^{***}	4.82^{***}
	(0.80)	(0.86)	(0.87)	(0.87)	(0.97)
Constant	25.60^{***}	44.93^{***}			
	(0.49)	(0.94)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	122,172	111,681	111,681	111,681	111,681
R^2	0.01	0.04	0.05	0.10	0.23
Adjusted R^2	0.01	0.04	0.05	0.09	0.13

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

2.3 2.5% Truncation

$$\begin{aligned} DelayRate_{it} = \quad & \alpha + \beta_0 Treat_i + \beta_1 Post_t + \beta_2 (Treat_i \times Post_t) \\ + \quad & X_i + (Post_t \times X_i) + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it} \end{aligned}$$

2.3.1 One Quarter

Table 5: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-13.85^{***}	-13.95^{***}	-14.13^{***}	-12.74^{***}	-12.31^{***}
	(1.17)	(1.17)	(1.16)	(1.23)	(4.26)
$Post_t$	1.56	-2.00			
	(1.04)	(1.44)			
$Treat_i \times Post_t$	8.57^{***}	8.55^{***}	8.79^{***}	9.27^{***}	7.36^{***}
	(1.47)	(1.47)	(1.46)	(1.48)	(1.92)
Constant	81.92^{***}	84.50^{***}			
	(0.83)	(1.10)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	22,936	22,928	22,928	22,928	22,928
R^2	0.01	0.01	0.02	0.11	0.37
Adjusted R^2	0.01	0.01	0.02	0.08	0.17

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

2.3.2 Two-Quarters

Table 6: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-19.48^{***}	-19.26^{***}	-19.25^{***}	-17.02^{***}	1.95
	(2.12)	(2.10)	(2.09)	(2.21)	(9.19)
$Post_t$	9.12^{***}	-4.09			
	(1.93)	(2.80)			
$Treat_i \times Post_t$	12.77^{***}	12.55^{***}	12.76^{***}	12.77^{***}	10.77^{***}
	(2.78)	(2.77)	(2.76)	(2.79)	(3.69)
Constant	118.27^{***}	130.96^{***}			
	(1.48)	(2.06)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	15,315	15,308	15,308	15,308	15,308
R^2	0.01	0.02	0.02	0.14	0.46
Adjusted R^2	0.01	0.02	0.02	0.09	0.22

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

3 Sample with Non-Zero Delays

3.1 5% winsorization on full sample

$$\begin{aligned} DelayRate_{it} = \quad & \alpha + \beta_0 Treat_i + \beta_1 Post_t + \beta_2 (Treat_i \times Post_t) \\ + \quad & X_i + (Post_t \times X_i) + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it} \end{aligned}$$

3.1.1 One Quarter

Table 7: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-9.22^{***}	-9.34^{***}	-9.38^{***}	-7.62^{***}	-5.47^{***}
	(0.69)	(0.69)	(0.68)	(0.70)	(2.11)
$Post_t$	2.29^{***}	-0.51			
	(0.54)	(0.78)			
$Treat_i \times Post_t$	6.78^{***}	6.62^{***}	6.67^{***}	6.25^{***}	4.84^{***}
	(0.82)	(0.82)	(0.81)	(0.80)	(0.99)
Constant	73.51^{***}	73.36^{***}			
	(0.45)	(0.61)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	30,138	30,130	30,130	30,130	30,130
R^2	0.01	0.02	0.03	0.14	0.39
Adjusted R^2	0.01	0.02	0.03	0.11	0.21

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

3.1.2 Two Quarters

Table 8: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-16.47^{***}	-16.73^{***}	-16.59^{***}	-12.45^{***}	-4.57
	(1.60)	(1.60)	(1.59)	(1.64)	(5.65)
$Post_t$	9.03^{***}	-0.10			
	(1.33)	(2.00)			
$Treat_i \times Post_t$	11.55^{***}	11.12^{***}	11.09^{***}	10.11^{***}	7.81^{***}
	(1.97)	(1.97)	(1.96)	(1.95)	(2.51)
Constant	119.88^{***}	122.61^{***}			
	(1.08)	(1.53)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	18,616	18,609	18,609	18,609	18,609
R^2	0.02	0.03	0.03	0.18	0.48
Adjusted R^2	0.02	0.02	0.03	0.14	0.26

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

3.2 2.5% winsorization on non-zero sample

$$\begin{aligned} DelayRate_{it} = \quad & \alpha + \beta_0 Treat_i + \beta_1 Post_t + \beta_2 (Treat_i \times Post_t) \\ + \quad & X_i + (Post_t \times X_i) + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it} \end{aligned}$$

3.2.1 One Quarter

Table 9: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-24.72^{***}	-24.71^{***}	-24.59^{***}	-15.28^{***}	-16.40^{*}
	(2.43)	(2.44)	(2.42)	(2.49)	(8.45)
$Post_t$	15.46^{***}	3.48			
	(2.15)	(2.95)			
$Treat_i \times Post_t$	25.24^{***}	24.34^{***}	24.07^{***}	22.04^{***}	18.45^{***}
	(3.07)	(3.07)	(3.05)	(3.03)	(3.87)
Constant	118.01^{***}	124.90^{***}			
	(1.72)	(2.22)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	32,707	32,699	32,699	32,699	32,699
R^2	0.01	0.02	0.02	0.14	0.40
Adjusted R^2	0.01	0.02	0.02	0.12	0.23

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

3.2.2 Two Quarters

Table 10: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-26.92^{***}	-26.68^{***}	-26.37^{***}	-16.57^{***}	-9.57
	(3.28)	(3.27)	(3.25)	(3.35)	(12.35)
$Post_t$	19.70^{***}	3.33			
	(2.95)	(4.34)			
$Treat_i \times Post_t$	24.39^{***}	23.17^{***}	23.12^{***}	21.01^{***}	18.96^{***}
	(4.26)	(4.24)	(4.22)	(4.20)	(5.58)
Constant	145.54^{***}	164.54^{***}			
	(2.29)	(3.14)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	20,072	20,065	20,065	20,065	20,065
R^2	0.01	0.02	0.02	0.17	0.47
Adjusted R^2	0.01	0.02	0.02	0.13	0.25

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

3.3 2.5% truncation on non-zero sample

$$\begin{aligned} DelayRate_{it} = \quad & \alpha + \beta_0 Treat_i + \beta_1 Post_t + \beta_2 (Treat_i \times Post_t) \\ + \quad & X_i + (Post_t \times X_i) + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it} \end{aligned}$$

3.3.1 One Quarter

Table 11: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-21.36^{***}	-21.92^{***}	-21.86^{***}	-12.74^{***}	-11.93
	(2.22)	(2.23)	(2.21)	(2.24)	(7.45)
$Post_t$	14.90^{***}	-0.49			
	(1.88)	(2.59)			
$Treat_i \times Post_t$	20.83^{***}	19.85^{***}	19.74^{***}	17.79^{***}	13.93^{***}
	(2.73)	(2.72)	(2.71)	(2.67)	(3.27)
Constant	116.26^{***}	112.31^{***}			
	(1.55)	(2.02)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	31,069	31,061	31,061	31,061	31,061
R^2	0.01	0.03	0.04	0.18	0.46
Adjusted R^2	0.01	0.03	0.04	0.15	0.30

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.

3.3.2 Two Quarters

Table 12: Effect of QuickPay on project delay rates

	$DelayRate_{it}$				
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-20.62^{***}	-19.11^{***}	-18.81^{***}	-5.89	-8.09
	(6.11)	(6.11)	(6.10)	(6.23)	(16.20)
$Post_t$	21.08^{***}	-9.26			
	(5.42)	(6.24)			
$Treat_i \times Post_t$	19.74^{***}	17.66^{**}	17.63^{**}	16.33^{**}	16.76^{*}
	(7.63)	(7.62)	(7.61)	(7.38)	(9.62)
Constant	115.74^{***}	162.12^{***}			
	(4.29)	(4.77)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	19,567	19,560	19,560	19,560	19,560
R^2	0.004	0.01	0.01	0.10	0.45
Adjusted R^2	0.004	0.01	0.01	0.07	0.23

Note: *p<0.1; **p<0.05; ***p<0.01
Each observation is a project-quarter.
SEs are robust and clustered at the project level.