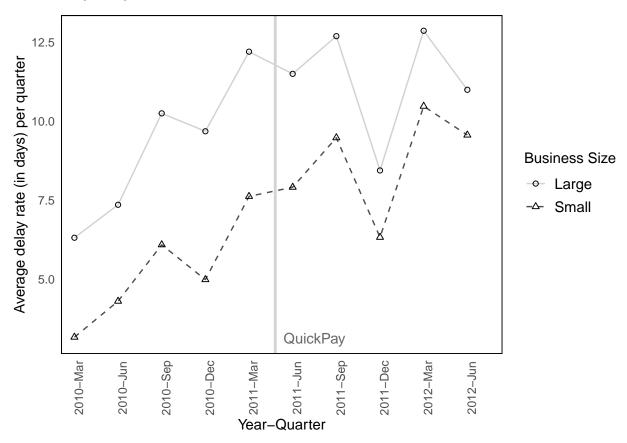
Percentage Delay Rate: QuickPay (2009-2012)

Jul 07, 2022

1 Delay days over time



2 Delay days over time (de-meaned)



3 Percentage 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"
- $PercentDelay_{it} = 100 \times Delay_{it}/Duration_{i,t-1}$
 - $Duration_{i,t-1} = Deadline_{i,t-1} StartDate_i$



4 Demeaned delay rate (in percentage)

• Subtract the average pre-quickpay delay rate from each observation



4.1 Normalized delay rate (in percentage)



5 Baseline Regressions

$$PercentDelay_{it} = \beta_0 + \beta_1 Treat_i + \beta_2 Post_t + \beta_3 (Treat_i \times Post_t) + e_{it}$$

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

Table 1: Effect of QuickPay on project delay rates

		Pe	ercentDela	y_{it}	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-2.48***	-1.59***	-1.62***	-1.31^{***}	-1.33^{***}
	(0.12)	(0.10)	(0.10)	(0.10)	(0.10)
$Post_t$	-0.32***	-8.32***			
	(0.12)	(0.81)			
$Treat_i \times Post_t$	1.27***	1.10***	1.13***	1.18***	1.23***
	(0.14)	(0.13)	(0.13)	(0.13)	(0.13)
Constant	6.44***	53.81***			
	(0.10)	(0.61)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	260,056	235,960	235,960	235,960	235,960
R^2	0.003	0.22	0.22	0.25	0.26
Adjusted R ²	0.003	0.22	0.22	0.25	0.25

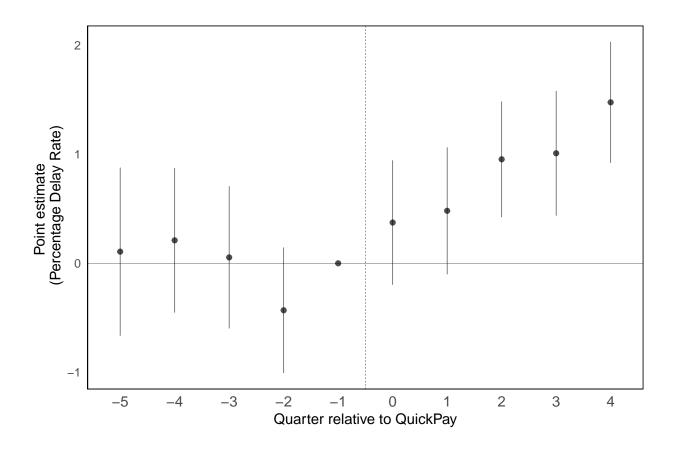
*p<0.1; **p<0.05; ***p<0.01

Each observation is a project-quarter.

SEs are robust and clustered at the project level.

6 Event study

 $PercentDelay_{it} = \beta_0 + \beta_1 Treat_i + \beta_2 Treat_i \times Quarter_t + \gamma_{task} + \theta_{naics} + \lambda_{quarter} + \nu_{sub-agency} + \epsilon_{it}$ ## NOTE: 242,843 observations removed because of NA values (LHS: 242,843, RHS: 9,862).



Parallel Trends Test

Table 2: Linear Time Trend Before QuickPay

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	-1.85***	-1.18***	-1.19***	-1.14***	-1.27***		
	(0.42)	(0.38)	(0.38)	(0.37)	(0.37)		
QuarterNum	0.51***	-1.49***					
	(0.07)	(0.49)					
$Treat_i \times QuarterNum$	-0.14	-0.11	-0.11	0.04	0.05		
	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)		
Constant	4.15***	60.96***					
	(0.35)	(2.30)					
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes		
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes		
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	97,705	90,650	90,650	90,650	90,650		
\mathbb{R}^2	0.01	0.26	0.26	0.32	0.32		
Adjusted R ²	0.01	0.26	0.26	0.31	0.31		

Note:

 $\label{eq:proposition} ^*\mathrm{p}{<}0.1;\ ^{***}\mathrm{p}{<}0.05;\ ^{****}\mathrm{p}{<}0.01$ Each observation is a project-quarter. SEs are robust and clustered at the project level. Observations are for quarters before quickpay.

8 Placebo Test

Placebo Regression Tables

[1] 3

Table 3: Placebo test: Treatment Time 2010-06-30

		$P\epsilon$	ercentDelay	y_{it}	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-4.50***	-4.12***	-4.13***	-2.77***	-2.99***
	(0.78)	(0.70)	(0.70)	(0.67)	(0.67)
Post	2.49***	-8.64*			
	(0.67)	(4.70)			
$Treat_i \times Post$	-1.25	0.64	0.62	0.83	0.91
	(0.81)	(0.73)	(0.73)	(0.71)	(0.70)
Constant	10.33***	122.58***			
	(0.65)	(4.49)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	97,705	90,650	90,650	90,650	90,650
R^2	0.01	0.32	0.32	0.37	0.37
Adjusted R ²	0.01	0.32	0.32	0.36	0.36

 $\label{eq:proposition} ^*p{<}0.1;~^{**}p{<}0.05;~^{***}p{<}0.01$ Each observation is a project-quarter.

SEs are robust and clustered at the project level. Observations are for quarters before quickpay.

Table 4: Placebo test: Treatment Time 2010-09-30

		Pe	rcentDelay	'it	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-4.58***	-3.43***	-3.43***	-2.21^{***}	-2.45***
	(0.49)	(0.42)	(0.42)	(0.42)	(0.41)
Post	2.52***	-12.11***			
	(0.47)	(3.07)			
$Treat_i \times Post$	-1.40**	-0.20	-0.19	0.26	0.38
	(0.56)	(0.49)	(0.49)	(0.48)	(0.48)
Constant	10.68***	124.33***			
	(0.41)	(2.70)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	97,705	90,650	90,650	90,650	90,650
\mathbb{R}^2	0.01	0.32	0.32	0.37	0.37
Adjusted R ²	0.01	0.32	0.32	0.36	0.36

 $\label{eq:problem} ^*\mathrm{p}{<}0.1;\ ^{**}\mathrm{p}{<}0.05;\ ^{***}\mathrm{p}{<}0.01$ Each observation is a project-quarter.

SEs are robust and clustered at the project level.

Observations are for quarters before quickpay.

Summary statistics 9

10 Number of Projects

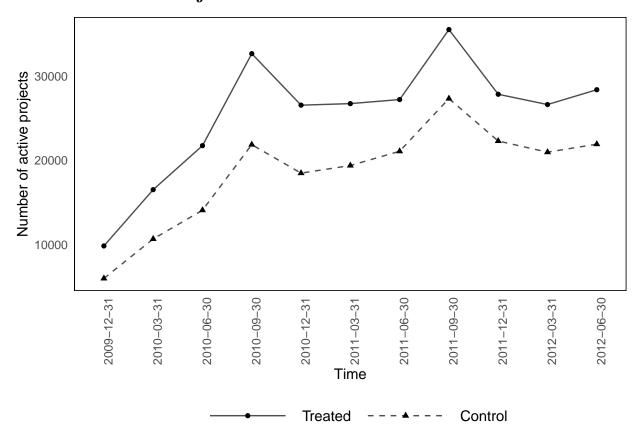


Table 5: Number of Projects after QuickPay

		Nυ	imber of project	ts_{it}	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	$7,761.17^{***} (25.54)$	7,944.08*** (4.15)	7,948.08*** (4.34)	7,944.71*** (4.37)	7,922.32*** (9.13)
$Post_t$	5,897.76*** (17.59)				
$Treat_i \times Post_t$,	$-1,461.78^{***}$ (4.36)	,	,	$-1,477.05^{***}$ (4.37)
Constant	17,063.83*** (16.90)				
Time fixed effects	No	Yes	Yes	Yes	Yes
Task fixed effects	No	No	Yes	Yes	Yes
Industry fixed effects	No	No	No	Yes	Yes
Contractor fixed effects	No	No	No	No	Yes
Observations	483,704	483,704	483,704	483,704	483,703
\mathbb{R}^2	0.47	0.99	0.99	0.99	0.99
Adjusted R ²	0.47	0.99	0.99	0.99	0.99

*p<0.1; **p<0.05; ***p<0.01 Each observation is a project-quarter. SEs are robust and clustered at the project level. Sample restricted to contractors active before Quick Pay. $\,$

Project portfolio: Continuous 11

Table 6: Project Portfolio and QuickPay reform

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	0.89	0.36	0.36	-0.36	-0.40		
	(0.61)	(0.54)	(0.54)	(0.49)	(0.49)		
$Post_t$	0.26	-7.39***					
	(0.75)	(1.05)					
Proportion Large Projects	3.43***	1.97***	1.99***	0.96*	0.93*		
	(0.63)	(0.55)	(0.55)	(0.51)	(0.51)		
$Treat_i \times Post_t \times$	0.68	0.12	0.13	0.73	0.74		
	(0.75)	(0.70)	(0.69)	(0.66)	(0.66)		
$Post_t \times$ Proportion Large Projects	-0.61	-1.01	-1.02	-0.48	-0.53		
	(0.77)	(0.71)	(0.71)	(0.68)	(0.68)		
$Treat_i \times Proportion Large Projects$	-5.41***	-3.71***	-3.80***	-1.91***	-1.81**		
	(0.85)	(0.79)	(0.79)	(0.74)	(0.74)		
$Treat_i \times Post_t \times Proportion Large Projects$	0.55	1.00	1.07	-0.29	-0.34		
	(1.08)	(1.05)	(1.04)	(1.01)	(1.01)		
Constant	3.11***	51.93***					
	(0.61)	(0.80)					
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes		
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes		
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	260,056	235,960	235,960	235,960	235,960		
\mathbb{R}^2	0.003	0.22	0.22	0.25	0.26		
Adjusted R ²	0.003	0.22	0.22	0.25	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.

Table 7: Project Portfolio and QuickPay reform: Restricted Sample

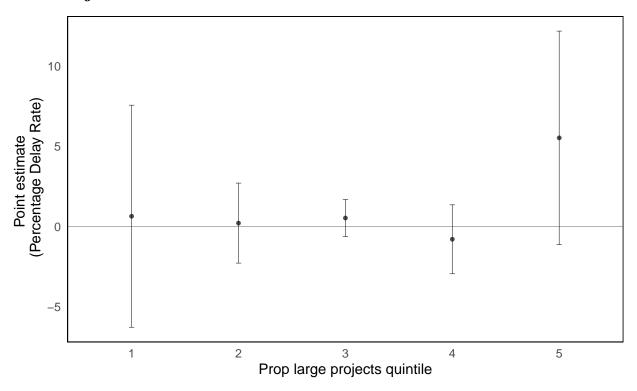
			Per	$rcentDelay_{it}$	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	3.26***	0.66	0.54	0.43	0.40
	(0.71)	(0.61)	(0.61)	(0.55)	(0.55)
$Post_t$	2.04**	-13.50***			
	(0.82)	(1.83)			
Proportion Large Projects	13.82***	4.32***	4.21***	2.31***	2.00***
	(0.91)	(0.68)	(0.68)	(0.62)	(0.62)
$Treat_i \times Post_t \times$	-1.73**	-1.09	-1.06	-0.12	0.01
	(0.84)	(0.76)	(0.76)	(0.73)	(0.73)
$Post_t \times Proportion Large Projects$	-4.18***	-1.57^{*}	-1.58^{*}	-0.94	-0.92
	(1.06)	(0.86)	(0.86)	(0.83)	(0.83)
$Treat_i \times Proportion Large Projects$	-10.70***	-4.19***	-4.05***	-3.78***	-4.05***
	(1.10)	(0.94)	(0.94)	(0.89)	(0.90)
$Treat_i \times Post_t \times Proportion Large Projects$	5.89***	3.66***	3.70***	2.12^{*}	1.98
	(1.34)	(1.22)	(1.21)	(1.21)	(1.21)
Constant	-1.72**	57.32***			
	(0.70)	(1.36)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times \text{(Duration, Budget, Bids)}$	No	Yes	Yes	Yes	Yes
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	49,222	45,643	45,643	45,643	45,643
\mathbb{R}^2	0.05	0.38	0.38	0.43	0.43
Adjusted R^2	0.05	0.37	0.38	0.42	0.43

 $\label{eq:proposition} ^*p{<}0.1;~^{**}p{<}0.05;~^{***}p{<}0.01$ Each observation is a project-quarter.

SEs are robust and clustered at the project level.

Sample restricted to observations with at least one small and one large project

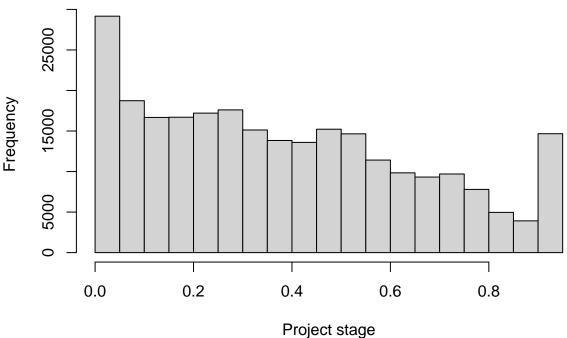
12 Project Portfolio: Discrete

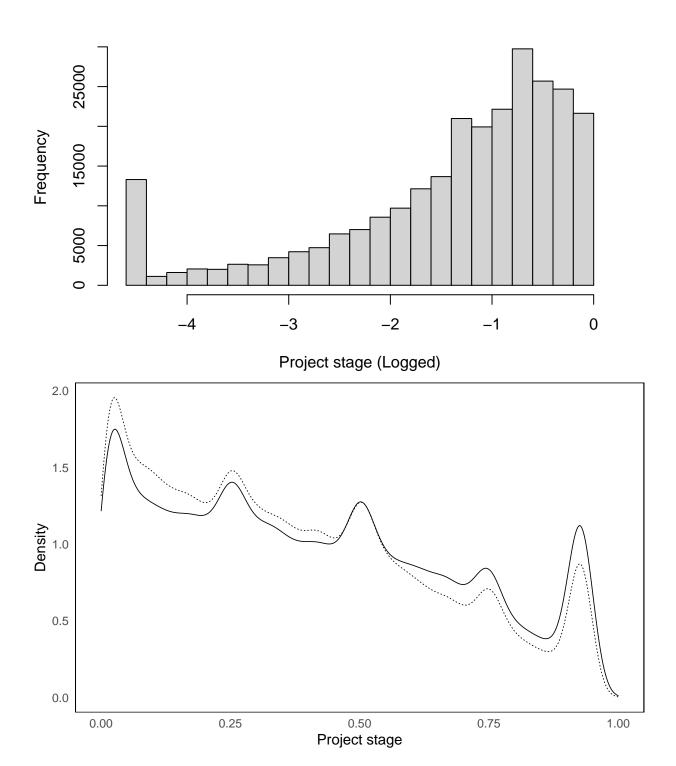


13 Project Stage

- ullet t indicates the end of the quarter
- We want to get stage of the project at the beginning of a given quarter (before any delays materialize)

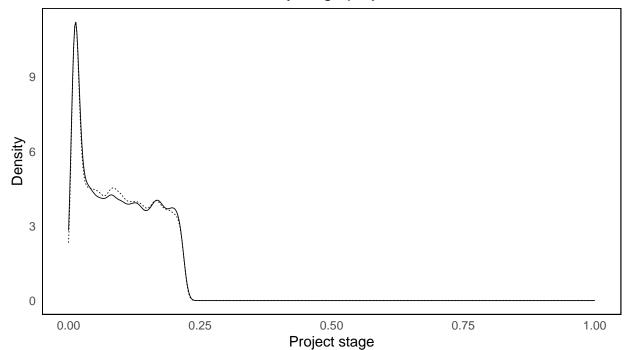
$$Stage_{it} = \frac{ActionDate_{t-1} - StartDate_i}{Duration_{i,t-1}} \ Stage_{it} = \frac{(t-1) - StartDate_i}{Duration_{i,t-1}}$$





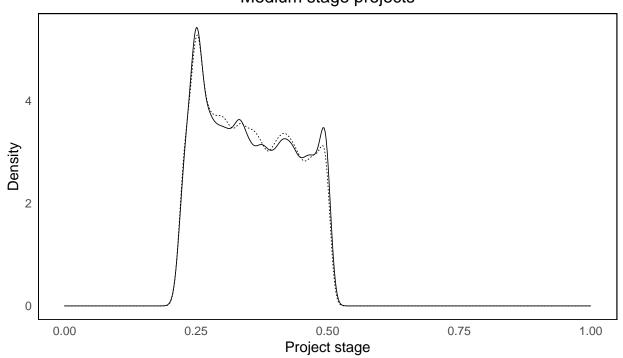
Business Type O S





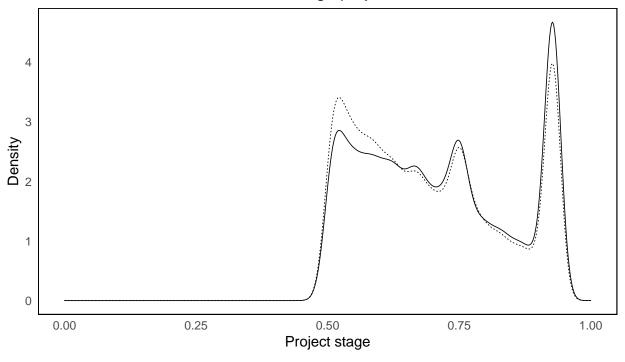
Business Type O S

Medium stage projects



Business Type O S

Late stage projects



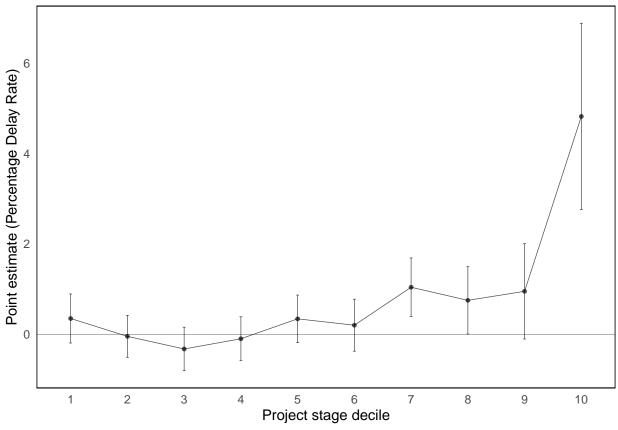
Business Type O

Table 8: Project Stage and QuickPay reform

		P	ercentDela	y_{it}	
	(1)	(2)	(3)	(4)	(5)
$\overline{Treat_i}$	-0.40^{***} (0.09)	-1.21^{***} (0.11)	-1.18^{***} (0.11)	-0.89^{***} (0.12)	-0.88^{***} (0.12)
Medium Stage	0.93*** (0.12)	0.51*** (0.13)	0.37*** (0.13)	0.69*** (0.13)	0.68*** (0.13)
Late Stage	16.99*** (0.28)	11.96*** (0.23)	11.81*** (0.23)	11.46*** (0.23)	11.45*** (0.23)
$Post_t$	-0.15 (0.09)	-6.51^{***} (0.79)			
$Treat_i \times Post_t$	0.19^* (0.12)	0.11 (0.15)	$0.09 \\ (0.15)$	$0.08 \\ (0.15)$	0.13 (0.15)
$Treat_i \times$ Medium Stage	-0.46^{***} (0.15)	0.33** (0.16)	0.31^* (0.16)	0.25 (0.16)	$0.25 \\ (0.16)$
$Treat_i \times$ Late Stage	-4.98^{***} (0.36)	-1.64^{***} (0.31)	-1.71^{***} (0.31)	-1.84^{***} (0.30)	-1.93^{***} (0.30)
$Post_t \times$ Medium Stage	-0.81^{***} (0.15)	0.38** (0.16)	0.26 (0.16)	-0.04 (0.16)	-0.05 (0.16)
$Post_t \times$ Late Stage	-5.58^{***} (0.32)	-2.00^{***} (0.27)	-2.07^{***} (0.27)	-2.51^{***} (0.27)	-2.52^{***} (0.27)
$Treat_i \times Post_t \times$ Medium Stage	0.36** (0.18)	-0.03 (0.21)	-0.03 (0.21)	0.14 (0.20)	0.14 (0.20)
$Treat_i \times Post_t \times$ Late Stage	3.77*** (0.41)	2.76*** (0.37)	2.81*** (0.37)	3.00*** (0.36)	3.05*** (0.36)
Constant	1.51*** (0.07)	44.19*** (0.59)			
Duration, Budget, Bids $Post_t \times$ (Duration, Budget, Bids) Time fixed effects Task fixed effects Industry fixed effects Observations	No No No No No 260,000	Yes Yes No No No 235,960	Yes Yes Yes No No 235,960	Yes Yes Yes Yes No 235,960	Yes Yes Yes Yes Yes 235,960
R ² Adjusted R ²	0.11 0.11	0.24 0.24	0.24 0.24	0.27 0.27	0.27 0.27

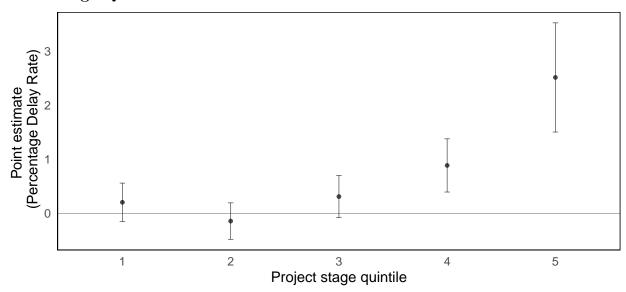
 ${\rm ^*p}{<}0.1;\ {\rm ^{**}p}{<}0.05;\ {\rm ^{***}p}{<}0.01$ Each observation is a project-quarter. SEs are robust and clustered at the project level.

13.1 Stage decile Regression Plots



 $\begin{array}{l} {\rm stage_decile\ Min\ stage\ Max\ stage\ 1:\ 1\ 0.00\ 0.04\ 2:\ 2\ 0.04\ 0.11\ 3:\ 3\ 0.11\ 0.19\ 4:\ 4\ 0.19\ 0.26\ 5:\ 5\ 0.26\ 0.35\ 6:} \\ {\rm 6\ 0.35\ 0.44\ 7:\ 7\ 0.44\ 0.52\ 8:\ 8\ 0.52\ 0.64\ 9:\ 9\ 0.64\ 0.78\ 10:\ 10\ 0.78\ 1.00} \end{array}$

13.2 Stage Quintile



 $stage_quintile\ Min\ stage\ Max\ stage\ 1:\ 1\ 0.00\ 0.11\ 2:\ 2\ 0.11\ 0.26\ 3:\ 3\ 0.26\ 0.44\ 4:\ 4\ 0.44\ 0.64\ 5:\ 5\ 0.64\ 1.00$

13.3 Logged Stage Regressions

Table 9: Project Stage and QuickPay reform

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	-4.72***	-2.45***	-2.50***	-2.14***	-2.19***		
	(0.25)	(0.21)	(0.21)	(0.20)	(0.20)		
Log(Stage)	4.50***	3.17***	3.12***	3.14***	3.14***		
	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)		
$Post_t$	-2.20***	-7.92***					
	(0.23)	(0.83)					
$Treat_i \times Post_t$	2.88***	2.10***	2.14***	2.25***	2.33***		
	(0.30)	(0.26)	(0.26)	(0.25)	(0.25)		
$Treat_i \times Log(Stage)$	-1.65***	-0.54***	-0.55***	-0.52***	-0.55***		
	(0.11)	(0.09)	(0.09)	(0.09)	(0.09)		
$Post_t \times Log(Stage)$	-0.36***	0.53***	0.53***	0.23***	0.22**		
	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)		
$Treat_i \times Post_t \times Log(Stage)$	0.93***	0.64***	0.65***	0.71***	0.73***		
	(0.13)	(0.12)	(0.12)	(0.12)	(0.12)		
Constant	13.35***	53.91***					
	(0.20)	(0.62)					
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes		
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	260,000	235,960	235,960	235,960	235,960		
R^2	0.06	0.22	0.22	0.25	0.26		
Adjusted R ²	0.06	0.22	0.22	0.25	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.

13.4 Aliter: Stage definition

ullet t indicates the end of the quarter

 $Stage_{it} = \frac{ActionDate_t - StartDate_i}{Duration_{i,t}} \ Stage_{it} = \frac{t - StartDate_i}{Duration_{i,t}}$

Table 10: Project Stage and QuickPay reform

		$P\epsilon$	ercentDelay	J it	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-1.34^{***} (0.17)	-0.64^{***} (0.23)	-0.48^{**} (0.24)	-0.60^{**} (0.24)	-0.62^{***} (0.24)
Medium Stage	3.01*** (0.20)	-2.26^{***} (0.22)	-2.66^{***} (0.22)	-1.80^{***} (0.22)	-1.79^{***} (0.22)
Late Stage	6.37*** (0.24)	-7.43^{***} (0.27)	-8.25^{***} (0.28)	-6.77^{***} (0.27)	-6.70^{***} (0.27)
$Post_t$	-0.93^{***} (0.18)	-25.05^{***} (1.09)			
$Treat_i \times Post_t$	1.17*** (0.22)	1.04*** (0.30)	0.97*** (0.30)	0.79*** (0.30)	0.85*** (0.30)
$Treat_i \times Medium Stage$	-0.89^{***} (0.24)	-1.05^{***} (0.28)	-1.26^{***} (0.28)	-0.76^{***} (0.28)	-0.74^{***} (0.28)
$Treat_i \times Late Stage$	-2.19^{***} (0.28)	-1.40^{***} (0.29)	-1.43^{***} (0.29)	-0.76^{***} (0.29)	-0.81^{***} (0.29)
$Post_t \times$ Medium Stage	0.78*** (0.24)	3.54*** (0.26)	3.52*** (0.27)	2.86*** (0.27)	2.83*** (0.27)
$Post_t \times$ Late Stage	$0.26 \\ (0.29)$	6.38*** (0.31)	6.81*** (0.32)	5.47*** (0.32)	5.38*** (0.32)
$Treat_i \times Post_t \times$ Medium Stage	$0.08 \\ (0.30)$	0.37 (0.36)	0.51 (0.36)	0.61^* (0.35)	0.59^* (0.35)
$Treat_i \times Post_t \times$ Late Stage	0.19 (0.35)	-0.21 (0.37)	-0.28 (0.37)	-0.03 (0.37)	-0.01 (0.37)
Constant	2.81*** (0.15)	68.49*** (0.93)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids) Time fixed effects	No No	Yes No	$\begin{array}{c} { m Yes} \\ { m Yes} \end{array}$	$\begin{array}{c} { m Yes} \\ { m Yes} \end{array}$	$\begin{array}{c} { m Yes} \\ { m Yes} \end{array}$
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	260,056	236,016	236,016	236,016	236,016
\mathbb{R}^2	0.02	0.18	0.19	0.23	0.23
Adjusted R^2	0.02	0.18	0.19	0.22	0.22

14 Contract Financing

$$CF_i = \begin{cases} 1, & \text{if project } i \text{ receives contract financing} \\ 0, & \text{otherwise} \end{cases}$$

$$\begin{aligned} PercentDelay_{it} = & \beta_0 + \beta_1 Treat_i + \beta_2 Post_t + \beta_3 (Treat_i \times Post_t) \\ + & \beta_4 CF_i + \beta_5 (CF_i \times Post_t) + \beta_6 (Treat_i \times Post_t \times CF_i) \\ + & X_i + (Post_t \times X_i) + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it} \end{aligned}$$

Table 11: Financial constraints and QuickPay reform

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	-2.45***	-1.64***	-1.67***	-1.30***	-1.31***		
	(0.12)	(0.10)	(0.10)	(0.10)	(0.10)		
$Post_t$	-0.36***	-8.19***					
•	(0.12)	(0.82)					
$Treat_i \times Post_t$	1.08***	0.98***	0.99***	1.09***	1.15***		
	(0.15)	(0.13)	(0.13)	(0.13)	(0.13)		
CF_i	2.59***	2.08***	1.97***	-0.59^{***}	-0.68***		
	(0.19)	(0.17)	(0.17)	(0.17)	(0.17)		
$Post_t \times CF_i$	0.12	-0.63**	-0.53**	0.07	0.08		
	(0.28)	(0.25)	(0.25)	(0.25)	(0.25)		
$Post_t \times CF_i \times Treat_i$	1.95***	1.05***	1.09***	0.55**	0.49*		
	(0.30)	(0.24)	(0.24)	(0.25)	(0.26)		
Constant	6.09***	54.48***					
	(0.10)	(0.62)					
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes		
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes		
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	260,056	235,960	235,960	235,960	235,960		
R^2	0.01	0.22	0.22	0.25	0.26		
Adjusted R^2	0.01	0.22	0.22	0.25	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.

14.1 With Treat x CF term

Table 12: Financial constraints and QuickPay reform

		Pe	ercentDela	y_{it}	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-2.83***	-1.86***	-1.88***	-1.43***	-1.44***
	(0.13)	(0.11)	(0.11)	(0.11)	(0.11)
$Post_t$	-0.57^{***}	-8.35^{***}			
	(0.13)	(0.82)			
CF_i	1.01***	1.26***	1.16***	-1.08***	-1.16***
	(0.28)	(0.24)	(0.24)	(0.25)	(0.25)
$Treat_i \times Post_t$	1.45***	1.19***	1.21***	1.21***	1.27***
	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)
$Post_t \times CF_i$	1.70***	0.19	0.27	0.54^{*}	0.54^{*}
	(0.34)	(0.31)	(0.31)	(0.31)	(0.31)
$Treat_i \times CF_i$	2.90***	1.53***	1.52***	0.92***	0.90***
	(0.38)	(0.31)	(0.31)	(0.31)	(0.31)
$Treat_i \times Post_t \times CF_i$	-0.96**	-0.48	-0.43	-0.34	-0.37
	(0.47)	(0.41)	(0.41)	(0.41)	(0.41)
Constant	6.30***	54.65***			
	(0.11)	(0.62)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	260,056	235,960	235,960	235,960	235,960
R^2	0.01	0.22	0.22	0.25	0.26
Adjusted R ²	0.01	0.22	0.22	0.25	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.

14.2 Projects active on/before June 2010

- Sample restricted to projects that started on or before June 2010
- $\bullet~$ Jobs act was launched in Sept 2010

Table 13: Financial constraints and QuickPay reform

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	-3.07***	-1.52^{***}	-1.59^{***}	-1.01***	-1.08***		
	(0.17)	(0.15)	(0.14)	(0.15)	(0.15)		
$Post_t$	1.43***	-19.81***					
	(0.28)	(2.41)					
CF_i	0.52	1.19***	1.00***	-1.35***	-1.48***		
	(0.38)	(0.33)	(0.32)	(0.35)	(0.35)		
$Treat_i \times Post_t$	-0.05	2.64***	2.68***	2.74***	2.75***		
	(0.34)	(0.45)	(0.45)	(0.47)	(0.47)		
$Post_t \times CF_i$	0.28	-1.15^{*}	-0.97	0.67	0.73		
	(0.68)	(0.69)	(0.68)	(0.71)	(0.71)		
$Treat_i \times CF_i$	2.96***	1.41***	1.39***	1.08**	1.07**		
	(0.51)	(0.44)	(0.43)	(0.45)	(0.45)		
$Treat_i \times Post_t \times CF_i$	0.79	-1.55	-1.50	-1.04	-1.12		
	(0.97)	(0.98)	(0.97)	(1.00)	(1.00)		
Constant	6.74***	58.27***					
	(0.14)	(0.85)					
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes		
$Post_t \times (Duration, Budget, Bids)$	No	Yes	Yes	Yes	Yes		
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	75,119	64,292	64,292	64,292	64,292		
R^2	0.01	0.23	0.23	0.27	0.28		
Adjusted R ²	0.01	0.23	0.23	0.26	0.27		

 $\label{eq:proposition} ^*p{<}0.1;~^{**}p{<}0.05;~^{***}p{<}0.01$ Each observation is a project-quarter.

SEs are robust and clustered at the project level.

14.3 Firm level financial Constraints (on/before June 2010)

- CF = 1 if contractor was receiving financing on any project prior on or before June 2010
- Jobs act was launched in Sept 2010

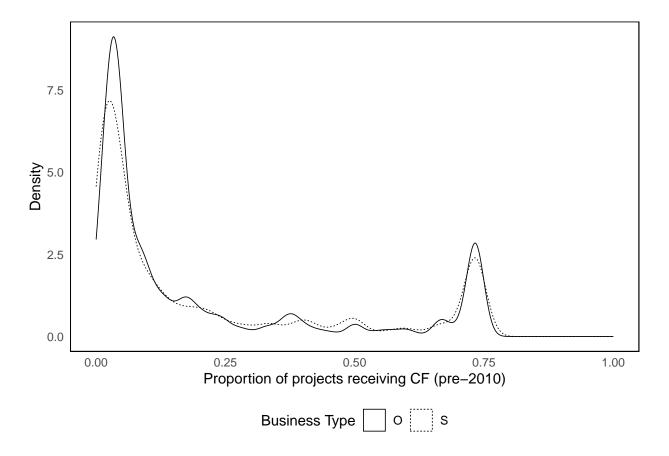
Table 14: Financial constraints and QuickPay reform

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	-0.38***	-0.19	-0.24^{*}	-0.74***	-0.75^{***}		
	(0.14)	(0.13)	(0.13)	(0.13)	(0.13)		
$Post_t$	0.17	-8.13***					
	(0.14)	(0.85)					
CF_i	4.74***	3.57***	3.47***	1.07***	1.07***		
	(0.20)	(0.15)	(0.15)	(0.16)	(0.16)		
$Treat_i \times Post_t$	0.34^{*}	0.03	0.06	0.60***	0.70***		
	(0.18)	(0.17)	(0.17)	(0.17)	(0.17)		
$Post_t \times CF_i$	-1.17***	-1.83***	-1.74***	-1.09***	-1.04***		
·	(0.24)	(0.20)	(0.20)	(0.20)	(0.20)		
$Treat_i \times CF_i$	-4.17***	-2.68***	-2.60***	-1.07***	-1.09***		
	(0.24)	(0.20)	(0.20)	(0.20)	(0.20)		
$Treat_i \times Post_t \times CF_i$	1.62***	1.76***	1.71***	0.95***	0.90***		
	(0.30)	(0.27)	(0.27)	(0.26)	(0.26)		
Constant	4.00***	51.77***					
	(0.11)	(0.63)					
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes		
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes		
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	229,552	209,046	209,046	209,046	209,046		
\mathbb{R}^2	0.01	0.22	0.22	0.26	0.26		
Adjusted R^2	0.01	0.22	0.22	0.25	0.26		

 $\label{eq:polynomial} \begin{array}{c} ^*p{<}0.1; \ ^{**}p{<}0.05; \ ^{***}p{<}0.01 \\ \text{Each observation is a project-quarter.} \\ \text{SEs are robust and clustered at the project level.} \end{array}$

14.4 Plots

Warning: Removed 255008 rows containing non-finite values (stat_density).



15 Receives Grants/Financial Assistance

- CF = 1 if receives_grants=='t'
- The variable "receives_grants" used to be called "receives financial assistance"

15.1 All projects

Table 15: Financial constraints and QuickPay reform

		P	ercentDela	y_{it}	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-1.98***	-1.45***	-1.46***	-1.11***	-1.13***
	(0.12)	(0.11)	(0.11)	(0.10)	(0.10)
$Post_t$	-0.04	-8.70***			
	(0.12)	(0.85)			
CF_i	12.86***	6.26***	6.16***	4.84***	4.86***
	(0.74)	(0.44)	(0.44)	(0.44)	(0.44)
$Treat_i \times Post_t$	0.76***	0.79***	0.79***	0.92***	1.00***
	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)
$Post_t \times CF_i$	-8.21***	-4.36***	-4.28***	-3.99***	-3.85**
	(0.79)	(0.55)	(0.55)	(0.55)	(0.55)
$Treat_i \times CF_i$	-9.13***	-2.65***	-2.55***	-2.64***	-2.69**
	(0.90)	(0.63)	(0.63)	(0.64)	(0.64)
$Treat_i \times Post_t \times CF_i$	7.42***	3.37***	3.27***	3.50***	3.35***
	(1.01)	(0.81)	(0.81)	(0.81)	(0.81)
Constant	5.70***	52.96***			
	(0.10)	(0.63)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times (Duration, Budget, Bids)$	No	Yes	Yes	Yes	Yes
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	$229,\!552$	209,046	209,046	209,046	209,046
\mathbb{R}^2	0.01	0.22	0.22	0.26	0.26
Adjusted R ²	0.01	0.22	0.22	0.25	0.26

Note:

 ${\rm ^*p}{<}0.1;\ {\rm ^{**}p}{<}0.05;\ {\rm ^{***}p}{<}0.01$ Each observation is a project-quarter. SEs are robust and clustered at the project level.

Projects active on/before June 2010 15.2

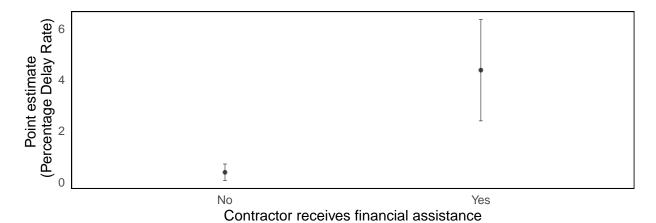
Table 16: Financial constraints and QuickPay reform

		Pe	rcentDelay	it	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-2.14***	-1.08***	-1.17***	-0.67^{***}	-0.75***
	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)
$Post_t$	1.93***	-17.54^{***}			
	(0.26)	(2.37)			
CF_i	13.75***	6.69***	6.18***	4.61***	4.67***
	(1.00)	(0.58)	(0.58)	(0.59)	(0.59)
$Treat_i \times Post_t$	-0.30	1.93***	2.01***	2.14***	2.11***
	(0.33)	(0.41)	(0.41)	(0.42)	(0.42)
$Post_t \times CF_i$	-9.62***	-7.54***	-6.96^{***}	-5.34***	-5.29***
	(1.30)	(1.30)	(1.29)	(1.30)	(1.30)
$Treat_i \times CF_i$	-10.12***	-2.92***	-2.53***	-2.86***	-2.95***
	(1.18)	(0.81)	(0.80)	(0.80)	(0.80)
$Treat_i \times Post_t \times CF_i$	8.03***	5.29***	4.92***	5.05***	5.27***
	(1.63)	(1.84)	(1.83)	(1.85)	(1.84)
Constant	6.03***	56.30***			
	(0.13)	(0.83)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times (Duration, Budget, Bids)$	No	Yes	Yes	Yes	Yes
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	74,942	64,129	64,129	64,129	64,129
R^2	0.02	0.23	0.23	0.27	0.28
Adjusted R ²	0.02	0.23	0.23	0.27	0.27

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.



Firm level financial constraints (on/before June 2010)

Table 17: Financial constraints and QuickPay reform

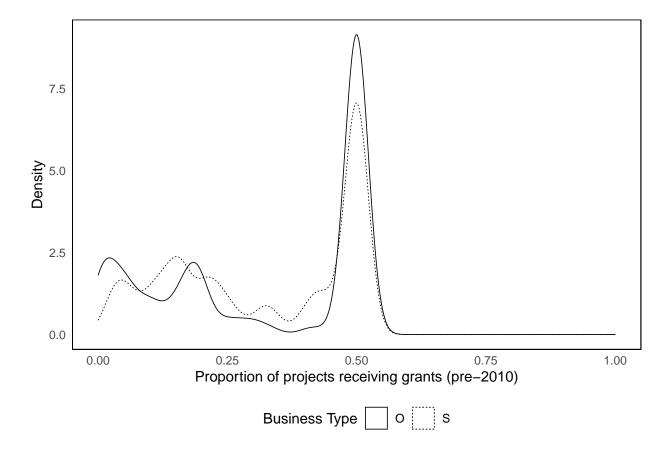
	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	-1.43***	-1.14***	-1.15***	-0.82***	-0.84^{***}		
	(0.12)		(0.11)		(0.11)		
$Post_t$	-0.13	-8.94***					
	(0.12)	(0.85)					
CF_i	8.43***	4.12***	4.04***	3.30***	3.34***		
	(0.40)	(0.25)	(0.25)	(0.25)	(0.25)		
$Treat_i \times Post_t$	0.86***	0.78***	0.79***	0.89***	0.98***		
	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)		
$Post_t \times CF_i$	-2.79***	-1.85***	-1.77***	-1.90***	-1.77***		
	(0.46)	(0.32)	(0.32)	(0.32)	(0.32)		
$Treat_i \times CF_i$	-6.93***	-2.88***	-2.82***	-2.47^{***}	-2.45***		
	(0.51)	(0.38)	(0.38)	(0.37)	(0.37)		
$Treat_i \times Post_t \times CF_i$	2.37***	1.20**	1.14**	1.30***	1.14**		
	(0.61)	(0.50)	(0.50)	(0.49)	(0.49)		
Constant	5.18***	52.53***					
	(0.10)	(0.63)					
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes		
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes		
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	$229,\!552$	209,046	209,046	209,046	209,046		
\mathbb{R}^2	0.01	0.22	0.22	0.26	0.26		
Adjusted R^2	0.01	0.22	0.22	0.25	0.26		

 $\label{eq:polynomial} $^*p{<}0.1;\ ^{***}p{<}0.05;\ ^{****}p{<}0.01$ Each observation is a project-quarter.}$

SEs are robust and clustered at the project level.

15.3 Plots

Warning: Removed 394825 rows containing non-finite values (stat_density).



16 Competition

16.1 Impact on bidding metrics

Table 18: Effect of Competition After QuickPay: Quickpay 2009-2011

	$Number Of Bids_{it}$	$Initial Duration_{it} \\$	$Initial Budget_{it} \\$
	(1)	(2)	(3)
$Treat_i$	0.88***	-7.27^{***}	-15,055.20***
	(0.09)	(0.72)	(1,586.13)
$Treat_i \times Post_t$	0.27**	-3.38***	-29,491.30***
	(0.12)	(1.00)	(2,296.49)
Task fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes
Observations	227,609	220,550	227,732
R^2	0.25	0.20	0.24
Adjusted R ²	0.24	0.19	0.24

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.

Sample restricted to fully competed projects.

16.2 Impact on delays

Define

$$SA_i = \begin{cases} 1, & \text{if project was signed after QuickPay} \\ 0, & \text{otherwise} \end{cases}$$

$$SB_i = \begin{cases} 1, & \text{if project was signed before QuickPay} \\ 0, & \text{otherwise} \end{cases}$$

16.2.1 Subsample model

For a subsample of competitive or noncompetitive projects:

$$PercentDelay_{it} = \beta_0 + \beta_1 Treat_i + \beta_2 SA_i + \beta_3 Post_t + \beta_4 (Treat_i \times Post_t \times SA_i) + \beta_5 (Treat_i \times Post_t \times SB_i) + e_{it}$$

- According to our hypothesis, β_4 should be positive and significant for competitive projects, and insignificant for non-competitive projects.
- In the following regressions, we also control for the project's age. Project's age is defined as the number of quarters since it first showed up in the sample. We include the terciles of project's age as a control variable.

Table 19: Effect of QuickPay on competitively awarded projects

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	-3.26***	-2.81^{***}	-2.80***	-1.48***	-1.49^{***}		
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)		
SA_i	-2.26***	1.10***	1.99***	2.26***	2.21***		
	(0.18)	(0.17)	(0.19)	(0.18)	(0.18)		
$Post_t$	1.08***	-1.77***					
-	(0.16)	(0.16)					
$Treat_i \times SB_i \times Post_t$	0.19	0.25	0.26	0.49***	0.51***		
	(0.20)	(0.19)	(0.19)	(0.18)	(0.18)		
$Treat_i \times SA_i \times Post_t$	1.41***	1.08***	1.07***	1.25***	1.28***		
	(0.20)	(0.19)	(0.19)	(0.18)	(0.18)		
Constant	6.78***	12.46***					
	(0.12)	(0.14)					
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	189,977	189,933	189,933	189,933	189,933		
\mathbb{R}^2	0.01	0.07	0.07	0.14	0.15		
Adjusted R ²	0.01	0.07	0.07	0.14	0.15		

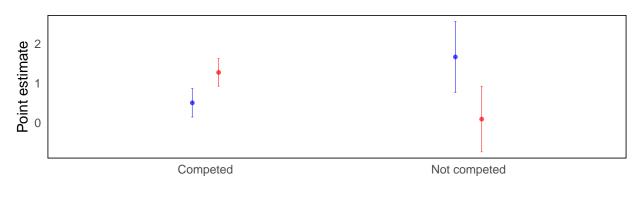
 $\label{eq:proposition} ^*p{<}0.1;~^{**}p{<}0.05;~^{***}p{<}0.01$ Each observation is a project-quarter. SEs are robust and clustered at the project level. Sample restricted to fully competed projects.

Table 20: Effect of QuickPay on non-competitively awarded projects

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$\overline{Treat_i}$	1.40*** (0.31)	1.16*** (0.30)	1.09*** (0.30)	-0.39 (0.32)	-0.22 (0.31)		
SA_i	-0.73^{***} (0.23)	2.13*** (0.23)	3.55*** (0.28)	2.97*** (0.29)	2.98*** (0.29)		
$Post_t$	-0.66^{***} (0.25)	-3.22^{***} (0.25)					
$Treat_i \times SB_i \times Post_t$	2.53^{***} (0.47)	2.25*** (0.45)	2.14*** (0.46)	1.77*** (0.45)	1.67*** (0.46)		
$Treat_i \times SA_i \times Post_t$	$0.51 \\ (0.45)$	0.56 (0.42)	$0.50 \\ (0.43)$	0.11 (0.42)	0.09 (0.42)		
Constant	4.91*** (0.20)	10.90*** (0.26)					
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	39,432	39,424	39,424	39,424	39,424		
\mathbb{R}^2	0.01	0.07	0.07	0.14	0.15		
Adjusted R ²	0.01	0.07	0.07	0.12	0.13		

 $\label{eq:proposition} ^*p{<}0.1;~^{**}p{<}0.05;~^{***}p{<}0.01$ Each observation is a project-quarter.

SEs are robust and clustered at the project level. Sample restricted to non-competed projects.



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Project started before QuickPay

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Project started after QuickPay

16.2.2 Subsample model II

Table 21: Effect of QuickPay on competitively awarded projects

		Pe	ercentDela	y_{it}	
	(1)	(2)	(3)	(4)	(5)
$Treat_i$	-3.26***	-2.81***	-2.80***	-1.48***	-1.49***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
SA_i	-2.26***	1.10***	1.99***	2.26***	2.21***
	(0.18)	(0.17)	(0.19)	(0.18)	(0.18)
$Post_t$	1.08***	-1.77***			
	(0.16)	(0.16)			
$Treat_i \times Post_t$	0.19	0.25	0.26	0.49***	0.51***
	(0.20)	(0.19)	(0.19)	(0.18)	(0.18)
$Treat_i \times Post_t \times SA_i$	1.22***	0.83***	0.82***	0.76***	0.77***
	(0.22)	(0.20)	(0.20)	(0.20)	(0.20)
Constant	6.78***	12.46***			
	(0.12)	(0.14)			
Project stage	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	Yes
Observations	189,977	189,933	189,933	189,933	189,933
\mathbb{R}^2	0.01	0.07	0.07	0.14	0.15
Adjusted R ²	0.01	0.07	0.07	0.14	0.15

Note:

 $\label{eq:proposition} ^*p{<}0.1;~^{**}p{<}0.05;~^{***}p{<}0.01$ Each observation is a project-quarter. SEs are robust and clustered at the project level.

Sample restricted to fully competed projects.

Table 22: Effect of QuickPay on non-competitively awarded projects

	$PercentDelay_{it}$						
	(1)	(2)	(3)	(4)	(5)		
$Treat_i$	1.40^{***} (0.31)	1.16*** (0.30)	1.09*** (0.30)	-0.39 (0.32)	-0.22 (0.31)		
SA_i	-0.73^{***} (0.23)	2.13*** (0.23)	3.55*** (0.28)	2.97*** (0.29)	2.98*** (0.29)		
$Post_t$	-0.66^{***} (0.25)	-3.22^{***} (0.25)					
$Treat_i \times Post_t$	2.53*** (0.47)	2.25^{***} (0.45)	2.14*** (0.46)	1.77^{***} (0.45)	1.67*** (0.46)		
$Treat_i \times Post_t \times SA_i$	-2.01^{***} (0.49)	-1.70^{***} (0.46)	-1.64^{***} (0.46)	-1.66^{***} (0.46)	-1.58^{***} (0.46)		
Constant	4.91*** (0.20)	10.90*** (0.26)					
Project stage	No	Yes	Yes	Yes	Yes		
Time fixed effects	No	No	Yes	Yes	Yes		
Task fixed effects	No	No	No	Yes	Yes		
Industry fixed effects	No	No	No	No	Yes		
Observations	$39,\!432$	$39,\!424$	$39,\!424$	39,424	$39,\!424$		
\mathbb{R}^2	0.01	0.07	0.07	0.14	0.15		
Adjusted R ²	0.01	0.07	0.07	0.12	0.13		

*p<0.1; **p<0.05; ***p<0.01

Each observation is a project-quarter.

SEs are robust and clustered at the project level.

Sample restricted to non-competed projects.

16.2.3 Four-way interaction

We run the following model:

$$\begin{split} PercentDelay_{it} = & \beta_0 + \beta_1 Treat_i + \beta_2 StartedAfterQP_i + \beta_3 Post_t + \beta_4 Competitive_i \\ & + \beta_5 (Treat_i \times Competitive_i) + \beta_6 (Post_t \times Competitive_i) \\ & + \beta_7 (StartedAfterQP_i \times Competitive_i) + \beta_8 (Treat_i \times Post_t) \\ & + \beta_9 (Treat_i \times Post_t \times Competitive_i) \\ & + \beta_{10} (Treat_i \times Post_t \times StartedAfterQP_i) \\ & + \beta_{11} (Treat_i \times Post_t \times StartedAfterQP_i \times Competitive_i) + e_{it} \end{split}$$

Interpretation:

- β_9 is the difference between treatment effect for competitive and non-competitive projects signed before quickpay.
- $\beta_9 + \beta_{11}$ is the difference between treatment effect for competitive and non-competitive projects signed after quickpay.
- β_{11} is our coefficient of interest because it tells us how much of the difference is there due to "aggressive bidding" after the policy.

Table 23: Effect of Competition After QuickPay: Quickpay 2009-2011

	$PercentDelay_{it}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{Treat_i}$	1.40*** (0.31)	1.40*** (0.31)	1.16*** (0.30)	1.09*** (0.30)	-0.63^{**} (0.30)	-0.73^{**} (0.30)
SA_i	-0.73^{***} (0.23)	-0.73^{***} (0.23)	2.12*** (0.22)	3.11*** (0.23)	2.95*** (0.23)	2.91*** (0.23)
$Competitive_i$	1.87*** (0.23)	1.87*** (0.23)	1.60*** (0.21)	1.55*** (0.21)	-0.16 (0.22)	-0.07 (0.22)
$Post_t$	-0.66^{***} (0.25)	-0.66^{***} (0.25)	-3.21^{***} (0.24)			
$Treat_i \times Competitive_i$	-4.65^{***} (0.34)	-4.65^{***} (0.34)	-3.97^{***} (0.32)	-3.89^{***} (0.32)	-0.89^{***} (0.32)	-0.80^{**} (0.32)
$Post_t \times Competitive_i$	1.74*** (0.30)	1.74*** (0.30)	1.43*** (0.29)	1.40*** (0.29)	0.28 (0.29)	0.20 (0.29)
$SA_i \times Competitive_i$	-1.53^{***} (0.29)	-1.53^{***} (0.29)	-1.01^{***} (0.27)	-1.02^{***} (0.27)	-0.66^{**} (0.27)	-0.66^{**} (0.27)
$Treat_i \times Post_t$	2.53*** (0.47)	2.53*** (0.47)	2.25*** (0.45)	2.21*** (0.45)	1.67*** (0.45)	1.66*** (0.45)
$Treat_i \times Post_t \times Competitive_i$	-2.33^{***} (0.51)	-2.33^{***} (0.51)	-2.01^{***} (0.49)	-1.95^{***} (0.49)	-1.16^{**} (0.49)	-1.13^{**} (0.49)
$Treat_i \times Post_t \times SA_i$	-2.01^{***} (0.49)	-2.01^{***} (0.49)	-1.70^{***} (0.46)	-1.69^{***} (0.46)	-1.37^{***} (0.45)	-1.37^{***} (0.45)
$Treat_i \times Post_t \times SA_i \times Competitive_i$	3.23*** (0.53)	3.23*** (0.53)	2.53*** (0.50)	2.51*** (0.50)	2.12*** (0.49)	2.13*** (0.49)
Constant	4.91*** (0.20)	4.91*** (0.20)	10.87*** (0.20)			
Project stage	No	No	Yes	Yes	Yes	Yes
Time fixed effects	No	No	No	Yes	Yes	Yes
Task fixed effects	No	No	No	No	Yes	Yes
Industry fixed effects	No	No	No	No	No	Yes
Observations D2	229,409	229,409	229,357	229,357	229,357	229,357
R^2 Adjusted R^2	$0.01 \\ 0.01$	$0.01 \\ 0.01$	0.07	$0.07 \\ 0.07$	0.14	0.14
Aujusteu It	0.01	0.01	0.07	0.07	0.13	0.14

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