

# Matched Regressions QuickPay (2009-2012)

Feb 14, 2023

## 1 Matching

Treatment and control groups matched exactly on three characteristics: - Product or Service Code - Subagency  
- Type of pricing

## 2 Delays over Time

## 3 Notation

- Project  $i$ , Year-Quarter  $t$
- $X_i$  denotes project level controls: initial duration, initial budget, number of offers received
- $\mu_t, \theta_{firm}, \lambda_{task}$ : Year-Quarter, Firm, and Product/Service code Fixed effects
- All continuous variables are winsorized at the 5% level

$$Treat_i = \begin{cases} 1, & \text{if project } i \text{ is a small business} \\ 0, & \text{otherwise} \end{cases}$$

$$Post_t = \begin{cases} 1, & \text{if year-quarter } t > \text{ April 27, 2011} \\ 0, & \text{otherwise} \end{cases}$$

## 4 Parallel Trends Test

Let  $Time$  denote  $q$ -th quarter since the beginning of time horizon. For  $Post_t = 0$ , we run the following regression:

$$DelayRate_{it} = \alpha + \beta_0 Treat_i + \beta_1 (Treat_i \times Time) + \beta_2 X_i + \mu_t + \theta_{firm} + \lambda_{task} + \epsilon_{it}$$

The coefficient of interest is  $\beta_1$ . If this is significant, we would find evidence of a linear time trend before quickpay implementation – violating the parallel trends assumption.

## 5 Baseline Regressions

$$DelayRate_{it} = \alpha + \beta_0 Treat_i + \beta_1 Post_t + \beta_2 (Treat_i \times Post_t) + \epsilon_{it}$$

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

Table 1: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)				
	(1)	(2)	(3)	(4)	(5)
<i>Treat<sub>i</sub></i>	-2.36*** (0.18)	-1.27*** (0.18)	-1.32*** (0.18)	-1.50*** (0.19)	-1.53*** (0.19)
<i>Post<sub>t</sub></i>	-0.09 (0.16)	-1.82*** (0.45)			
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	1.20*** (0.21)	1.05*** (0.22)	1.07*** (0.22)	1.15*** (0.22)	1.19*** (0.22)
Constant	6.89*** (0.14)	18.77*** (0.38)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub></i> × (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Project Age Tercile	No	Yes	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes	Yes
Task Fixed Effects	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes
Observations	150,686	132,495	132,495	132,495	132,495
R <sup>2</sup>	0.002	0.08	0.09	0.11	0.11
Adjusted R <sup>2</sup>	0.002	0.08	0.09	0.11	0.11

*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.

## 5.1 Clean Control Group

- Large projects of contractors holding both small & large projects are removed.

Table 2: Quickpay 2009-2011

	<i>PercentDelay<sub>it</sub></i> (clean control)				
	(1)	(2)	(3)	(4)	(5)
<i>Treat<sub>i</sub></i>	-1.31*** (0.16)	-0.24 (0.17)	-0.46*** (0.18)	-0.70*** (0.18)	-0.74*** (0.18)
<i>Post<sub>t</sub></i>	0.17 (0.15)				
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	0.88*** (0.19)	0.55*** (0.20)	0.81*** (0.21)	0.94*** (0.21)	0.95*** (0.21)
Constant	5.37*** (0.13)	28.48*** (0.57)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub> × (Duration, Budget, Bids)</i>	No	Yes	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes	Yes
Task Fixed Effects	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes
Observations	132,189	115,567	115,567	115,567	115,567
R <sup>2</sup>	0.001	0.06	0.06	0.09	0.09
Adjusted R <sup>2</sup>	0.001	0.06	0.06	0.08	0.08

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Each observation is a project-quarter.

SEs are robust and clustered at the project level.

## 5.2 One type contractor

Table 3: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)				
	(1)	(2)	(3)	(4)	(5)
<i>Treat<sub>i</sub></i>	−0.81*** (0.19)	−0.12 (0.20)	−0.25 (0.20)	−0.66*** (0.21)	−0.71*** (0.21)
<i>Post<sub>t</sub></i>	0.13 (0.16)				
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	1.00*** (0.22)	0.71*** (0.23)	0.81*** (0.24)	0.90*** (0.24)	0.90*** (0.24)
Constant	5.70*** (0.14)	12.50*** (0.70)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub> × (Duration, Budget, Bids)</i>	No	Yes	Yes	Yes	Yes
Project Age Tercile	No	Yes	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes	Yes
Task Fixed Effects	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes
Observations	113,307	98,933	98,933	98,933	98,933
R <sup>2</sup>	0.0005	0.09	0.09	0.12	0.12
Adjusted R <sup>2</sup>	0.0005	0.09	0.09	0.12	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.

Sample restricted to contractors holding only one type of project.

## 5.3 Impact on bids, duration, and budget

$$y_{it} = \beta_0 + \beta_1 \textit{Treat}_i + \beta_2 (\textit{Treat}_i \times \textit{Post}_t) + \mu_t + \lambda_{task} + e_{it}$$

where  $y_{it}$  denotes bids, duration, or budget of project  $i$  signed in quarter  $t$ .

- $\textit{Post}_t$  is a dummy that equals one if  $t$  is a quarter after QuickPay was launched.
- $\mu_t$  denotes fixed effects for the quarter in which the project was signed.

Table 4: Effect of Competition After QuickPay: Quickpay 2009-2011

	<i>NumberOfBids<sub>it</sub></i>	<i>InitialDuration<sub>it</sub></i>	<i>InitialBudget<sub>it</sub></i>
	(1)	(2)	(3)
$Treat_i$	0.89*** (0.09)	-7.33*** (0.70)	-10,203.21*** (1,103.25)
$Treat_i \times Post_t$	0.27** (0.12)	-3.26*** (0.98)	-22,048.85*** (1,580.03)
Task fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes
Observations	227,318	220,524	227,358
R <sup>2</sup>	0.25	0.20	0.27
Adjusted R <sup>2</sup>	0.24	0.19	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.  
Sample restricted to fully competed projects.

## 5.4 Impact on bids

Table 5: Effect of Competition After QuickPay: Quickpay 2009-2011

	<i>NumberOfBids<sub>it</sub></i>		
	(1)	(2)	(3)
$Treat_i$	0.25*** (0.10)	0.25*** (0.10)	0.89*** (0.09)
$Post_t$	-0.34*** (0.11)		
$Treat_i \times Post_t$	0.30** (0.13)	0.30** (0.13)	0.27** (0.12)
Constant	5.07*** (0.08)		
Year-Quarter Fixed Effects	No	Yes	Yes
Task Fixed Effects	No	No	Yes
Observations	227,318	227,318	227,318
R <sup>2</sup>	0.0002	0.0003	0.25
Adjusted R <sup>2</sup>	0.0002	0.0003	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.

## 5.5 Impact on Initial Duration

Table 6: Effect of Competition After QuickPay: Quickpay 2009-2011

	<i>InitialDuration<sub>it</sub></i>			
	(1)	(2)	(3)	(4)
<i>Treat<sub>i</sub></i>	-18.02*** (0.70)	-17.61*** (0.70)	-7.33*** (0.70)	-7.31*** (0.70)
<i>Post<sub>t</sub></i>	1.27 (0.88)			
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	2.84*** (1.06)	2.52** (1.06)	-3.26*** (0.98)	-3.17*** (0.97)
Constant	136.56*** (0.58)			
Year-Quarter Fixed Effects	No	Yes	Yes	Yes
Task Fixed Effects	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	Yes
Observations	220,524	220,524	220,524	220,524
R <sup>2</sup>	0.01	0.01	0.20	0.21
Adjusted R <sup>2</sup>	0.01	0.01	0.19	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.

Sample restricted to fully competed projects.

## 5.6 Impact on Initial Budget

Table 7: Effect of Competition After QuickPay: Quickpay 2009-2011

	<i>InitialBudget<sub>it</sub></i>			
	(1)	(2)	(3)	(4)
<i>Treat<sub>i</sub></i>	-64,224.13*** (1,020.96)	-60,124.82*** (1,135.76)	-10,203.21*** (1,103.25)	-8,224.51*** (1,098.84)
<i>Post<sub>t</sub></i>	23.31*** (2.08)			
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	-7,454.09*** (1,339.70)	-17,016.07*** (1,810.34)	-22,048.85*** (1,580.03)	-21,625.77*** (1,554.76)
Constant	-217,694.10*** (31,218.93)			
Year-Quarter Fixed Effects	No	Yes	Yes	Yes
Task Fixed Effects	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	Yes
Observations	227,358	227,358	227,358	227,358
R <sup>2</sup>	0.03	0.04	0.27	0.29
Adjusted R <sup>2</sup>	0.03	0.04	0.26	0.28

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.

## 5.7 Impact on delays

Define

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

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

### 5.7.1 Subsample model

For a subsample of competitive or noncompetitive projects:

$$\begin{aligned} DelayRate_{it} = & \beta_0 + \beta_1 Treat_i + \beta_2 SA_i + \beta_3 Post_t \\ & + \beta_4 (Treat_i \times Post_t \times SA_i) + \beta_5 (Treat_i \times Post_t \times SB_i) + \epsilon_{it} \end{aligned}$$

- According to our hypothesis,  $\beta_4$  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 8: Subsample of Competitive Projects: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)				
	(1)	(2)	(3)	(4)	(5)
<i>Treat<sub>i</sub></i>	-3.05*** (0.19)	-1.78*** (0.20)	-1.86*** (0.20)	-1.83*** (0.20)	-1.85*** (0.21)
<i>SA<sub>i</sub></i>	-0.32 (0.22)	0.67*** (0.21)	0.15 (0.25)	0.07 (0.25)	0.10 (0.25)
<i>Post<sub>t</sub></i>	0.27 (0.20)	-2.25*** (0.52)			
<i>Treat<sub>i</sub> × SB<sub>i</sub> × Post<sub>t</sub></i>	0.85*** (0.24)	1.17*** (0.26)	1.25*** (0.26)	1.50*** (0.26)	1.52*** (0.26)
<i>Treat<sub>i</sub> × SA<sub>i</sub> × Post<sub>t</sub></i>	1.71*** (0.30)	0.94*** (0.30)	1.01*** (0.30)	1.27*** (0.29)	1.30*** (0.29)
Constant	7.15*** (0.16)	19.44*** (0.43)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub></i> × (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Project age	No	Yes	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes	Yes
Task Fixed Effects	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes
Observations	123,231	107,615	107,615	107,615	107,615
R <sup>2</sup>	0.004	0.09	0.09	0.12	0.12
Adjusted R <sup>2</sup>	0.004	0.09	0.09	0.11	0.11

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Each observation is a project-quarter.

SEs are robust and clustered at the project level.

Sample restricted to fully competed projects.



Table 9: Subsample of Non-competitive Projects: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)			
	(1)	(2)	(3)	(4)
<i>Treat<sub>i</sub></i>	1.35*** (0.46)	1.49*** (0.47)	1.46*** (0.47)	-0.20 (0.49)
<i>SA<sub>i</sub></i>	0.54 (0.35)	1.10*** (0.36)	1.11** (0.46)	0.82* (0.47)
<i>Post<sub>t</sub></i>	-0.85** (0.34)	1.35 (1.29)		
<i>Treat<sub>i</sub> × SB<sub>i</sub> × Post<sub>t</sub></i>	0.89 (0.55)	0.58 (0.59)	0.61 (0.59)	0.79 (0.59)
<i>Treat<sub>i</sub> × SA<sub>i</sub> × Post<sub>t</sub></i>	-0.06 (0.66)	-0.67 (0.66)	-0.70 (0.66)	-0.27 (0.66)
Constant	5.78*** (0.30)	13.84*** (1.18)		
Duration, Budget, Bids	No	Yes	Yes	Yes
<i>Post<sub>t</sub> × (Duration, Budget, Bids)</i>	No	Yes	Yes	Yes
Project age	No	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes
Task Fixed Effects	No	No	No	Yes
Observations	27,455	24,880	24,880	24,880
R <sup>2</sup>	0.002	0.07	0.07	0.11
Adjusted R <sup>2</sup>	0.002	0.06	0.07	0.09

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Each observation is a project-quarter.

SEs are robust and clustered at the project level.

Sample restricted to non-competed projects.

### 5.7.2 Four-way interaction

We run the following model:

$$\begin{aligned}
\text{DelayRate}_{it} = & \beta_0 + \beta_1 \text{Treat}_i + \beta_2 \text{StartedAfterQP}_i + \beta_3 \text{Post}_t + \beta_4 \text{Competitive}_i \\
& + \beta_5 (\text{Treat}_i \times \text{Competitive}_i) + \beta_6 (\text{Post}_t \times \text{Competitive}_i) \\
& + \beta_7 (\text{StartedAfterQP}_i \times \text{Competitive}_i) + \beta_8 (\text{Treat}_i \times \text{Post}_t) \\
& + \beta_9 (\text{Treat}_i \times \text{Post}_t \times \text{Competitive}_i) \\
& + \beta_{10} (\text{Treat}_i \times \text{Post}_t \times \text{StartedAfterQP}_i) \\
& + \beta_{11} (\text{Treat}_i \times \text{Post}_t \times \text{StartedAfterQP}_i \times \text{Competitive}_i) + \epsilon_{it}
\end{aligned}$$

#### Interpretation:

- $\beta_9$  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.

- $\beta_{11}$  is our coefficient of interest because it tells us how much of the difference is there due to “aggressive bidding” after the policy.

Table 10: Effect of Competition After QuickPay: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Treat<sub>i</sub></i>	1.35*** (0.46)	1.31*** (0.48)	1.46*** (0.48)	1.45*** (0.48)	0.19 (0.47)	-0.01 (0.47)
<i>StartedAfterQP<sub>i</sub></i>	0.54 (0.35)	0.04 (0.34)	1.44*** (0.34)	1.04*** (0.37)	0.90** (0.37)	0.82** (0.37)
<i>Competitive<sub>i</sub></i>	1.37*** (0.34)	1.12*** (0.35)	1.27*** (0.35)	1.34*** (0.35)	0.95*** (0.35)	0.92*** (0.35)
<i>Post<sub>t</sub></i>	-0.85** (0.34)	-1.09** (0.53)	-2.42*** (0.54)			
<i>Treat<sub>i</sub> × Competitive<sub>i</sub></i>	-4.40*** (0.50)	-3.25*** (0.52)	-3.29*** (0.52)	-3.34*** (0.52)	-2.06*** (0.52)	-1.84*** (0.51)
<i>Post<sub>t</sub> × Competitive<sub>i</sub></i>	1.12*** (0.39)	0.60 (0.41)	0.44 (0.41)	0.37 (0.41)	-0.27 (0.40)	-0.29 (0.40)
<i>StartedAfterQP<sub>i</sub> × Competitive<sub>i</sub></i>	-0.86** (0.41)	-0.94** (0.40)	-0.87** (0.40)	-0.89** (0.40)	-0.85** (0.40)	-0.74* (0.40)
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	0.89 (0.55)	0.68 (0.59)	0.41 (0.59)	0.43 (0.59)	0.28 (0.59)	0.34 (0.59)
<i>Treat<sub>i</sub> × Post<sub>t</sub> × Competitive<sub>i</sub></i>	-0.04 (0.60)	0.61 (0.65)	0.80 (0.65)	0.83 (0.65)	1.21* (0.64)	1.17* (0.64)
<i>Treat<sub>i</sub> × Post<sub>t</sub> × StartedAfterQP<sub>i</sub></i>	-0.95 (0.58)	-1.28** (0.59)	-1.18** (0.59)	-1.28** (0.59)	-1.20** (0.59)	-1.17** (0.59)
<i>Treat<sub>i</sub> × Post<sub>t</sub> × StartedAfterQP<sub>i</sub> × Competitive<sub>i</sub></i>	1.81*** (0.64)	1.08* (0.65)	0.97 (0.65)	1.06 (0.65)	0.98 (0.65)	0.97 (0.65)
Constant	5.78*** (0.30)	18.56*** (0.45)	17.70*** (0.45)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub> × (Duration, Budget, Bids)</i>	No	Yes	Yes	Yes	Yes	Yes
Project age	No	No	Yes	Yes	Yes	Yes
Year-Quarter 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	150,686	132,495	132,495	132,495	132,495	132,495
R <sup>2</sup>	0.004	0.08	0.09	0.09	0.11	0.11
Adjusted R <sup>2</sup>	0.004	0.08	0.08	0.09	0.11	0.11

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.

## 6 Impact of Firm's Financial Constraints

### 6.1 Contract Financing

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

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

Table 11: Effect of Contract Financing: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)				
	(1)	(2)	(3)	(4)	(5)
<i>Treat<sub>i</sub></i>	-2.33*** (0.18)	-1.31*** (0.18)	-1.35*** (0.18)	-1.48*** (0.18)	-1.51*** (0.19)
<i>Post<sub>t</sub></i>	-0.42** (0.17)	-1.72*** (0.46)			
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	0.89*** (0.21)	0.89*** (0.22)	0.90*** (0.22)	1.02*** (0.22)	1.07*** (0.22)
<i>CF<sub>i</sub></i>	2.21*** (0.26)	0.88*** (0.27)	0.75*** (0.27)	-0.85*** (0.28)	-0.85*** (0.28)
<i>Post<sub>t</sub> × CF<sub>i</sub></i>	-0.38 (0.35)	-0.56 (0.35)	-0.46 (0.35)	-0.01 (0.35)	0.05 (0.35)
<i>Post<sub>t</sub> × CF<sub>i</sub> × Treat<sub>i</sub></i>	2.17*** (0.33)	1.00*** (0.32)	1.00*** (0.32)	0.65** (0.33)	0.53 (0.33)
Constant	6.14*** (0.15)	18.70*** (0.38)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub> × (Duration, Budget, Bids)</i>	No	Yes	Yes	Yes	Yes
Project Age Tercile	No	Yes	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes	Yes
Task Fixed Effects	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes
Observations	150,686	132,495	132,495	132,495	132,495
R <sup>2</sup>	0.01	0.08	0.09	0.11	0.11
Adjusted R <sup>2</sup>	0.01	0.08	0.09	0.11	0.11

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.

### 6.2 Receives Financial Aid

$$FinancialAid = \begin{cases} 1, & \text{if firm receives grants or is a c8A participant} \\ 0, & \text{otherwise} \end{cases}$$

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

Table 12: Effect of Grants or C8A Participant: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)				
	(1)	(2)	(3)	(4)	(5)
<i>Treat<sub>i</sub></i>	-2.73*** (0.18)	-1.74*** (0.18)	-1.79*** (0.18)	-1.81*** (0.19)	-1.83*** (0.19)
<i>Post<sub>t</sub></i>	0.09 (0.16)	-0.75* (0.45)			
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	1.23*** (0.21)	1.22*** (0.22)	1.25*** (0.22)	1.35*** (0.22)	1.40*** (0.22)
<i>FinancialAid</i>	6.55*** (0.39)	5.08*** (0.39)	4.95*** (0.39)	3.22*** (0.39)	3.11*** (0.39)
<i>Post<sub>t</sub> × FinancialAid</i>	-3.42*** (0.53)	-2.64*** (0.54)	-2.51*** (0.54)	-1.69*** (0.54)	-1.64*** (0.54)
<i>Post<sub>t</sub> × FinancialAid × Treat<sub>i</sub></i>	1.12** (0.44)	0.59 (0.46)	0.54 (0.46)	-0.03 (0.47)	-0.10 (0.47)
Constant	6.45*** (0.14)	18.90*** (0.37)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub> × (Duration, Budget, Bids)</i>	No	Yes	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes	Yes
Task Fixed Effects	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes
Observations	150,686	132,495	132,495	132,495	132,495
R <sup>2</sup>	0.01	0.08	0.08	0.11	0.11
Adjusted R <sup>2</sup>	0.01	0.08	0.08	0.10	0.10

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.

### 6.3 Receives Contracts and Financial Aid

$$CFA = \begin{cases} 1, & \text{if firm receives "contracts and grants"} \\ & \text{or grants or is a c8A participant} \\ 0, & \text{otherwise} \end{cases}$$

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

Table 13: Effect of Contracts, Grants, or C8A Participant: Quickpay 2009-2011

	<i>DelayRate<sub>it</sub></i> (in percentage)				
	(1)	(2)	(3)	(4)	(5)
<i>Treat<sub>i</sub></i>	-2.45*** (0.18)	-1.49*** (0.18)	-1.54*** (0.18)	-1.62*** (0.19)	-1.65*** (0.19)
<i>Post<sub>t</sub></i>	0.08 (0.16)	-0.74* (0.44)			
<i>Treat<sub>i</sub> × Post<sub>t</sub></i>	1.42*** (0.21)	1.38*** (0.22)	1.41*** (0.22)	1.51*** (0.22)	1.59*** (0.22)
<i>CFA</i>	5.56*** (0.29)	4.38*** (0.29)	4.24*** (0.29)	3.03*** (0.29)	2.99*** (0.29)
<i>Post<sub>t</sub> × CFA</i>	-1.96*** (0.38)	-1.45*** (0.38)	-1.33*** (0.38)	-0.95** (0.38)	-0.84** (0.38)
<i>Post<sub>t</sub> × CFA × Treat<sub>i</sub></i>	-0.61* (0.33)	-0.77** (0.34)	-0.79** (0.34)	-1.14*** (0.34)	-1.32*** (0.35)
Constant	6.00*** (0.14)	18.42*** (0.37)			
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
<i>Post<sub>t</sub> × (Duration, Budget, Bids)</i>	No	Yes	Yes	Yes	Yes
Year-Quarter Fixed Effects	No	No	Yes	Yes	Yes
Task Fixed Effects	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes
Observations	150,686	132,495	132,495	132,495	132,495
R <sup>2</sup>	0.01	0.08	0.08	0.11	0.11
Adjusted R <sup>2</sup>	0.01	0.08	0.08	0.10	0.10

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Each observation is a project-quarter.

SEs are robust and clustered at the project level.