Logistic regression: Negative Delay Rate – QuickPay (2009-2012)

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1 Logistic Regressions (Negative Delay)

2 Contract Financing

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

3 Competition

3.1 Impact on delays

Define

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

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

3.1.1 Subsample model

3.1.2 Four-way interaction

	$I(Delay_{it} < 0)$				
	(1)	(2)	(3)	(4)	(5)
Constant	-4.82^{***}	-5.55^{***}			
	(0.05)	(0.09)			
$Treat_i$	-0.13^{**}	0.07	0.08	0.04	0.04
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
$Post_t$	0.23^{***}	0.49^{***}			
	(0.06)	(0.12)			
CF_i	0.91^{***}	0.43^{***}	0.45^{***}	0.10	0.09
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)
$Treat_i \times Post_t$	-0.39^{***}	-0.38^{***}	-0.39^{***}	-0.37^{***}	-0.36^{***}
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
$Post_t \times CF_i$	-0.32^{***}	-0.24^{**}	-0.26^{**}	-0.16	-0.16
	(0.11)	(0.11)	(0.12)	(0.12)	(0.12)
$Treat_i \times Post_t \times CF_i$	0.38^{***}	0.20^{*}	0.20	0.13	0.13
	(0.12)	(0.12)	(0.12)	(0.13)	(0.13)
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter FE	No	No	Yes	Yes	Yes
Task FE	No	No	No	Yes	Yes
Industry FE	No	No	No	No	Yes
AIC	29002.56	27981.70			
BIC	29076.55	28117.96			
Log Likelihood	-14494.28	-13977.85			
Deviance	28988.56	27955.70	27940.33	25646.78	25532.18
Num. obs.	287530	263488	263488	236352	235448

Each observation is a project-quarter. SEs are robust and clustered at the project level.

Table 1: Contract Financing

	$I(Delay_{it} < 0)$				
	(1)	(2)	(3)	(4)	(5)
Constant	-4.61^{***}	-5.56^{***}			
	(0.05)	(0.10)			
$Treat_i$	-0.23^{***}	0.07	0.08	0.04	0.05
	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)
SA_i	-0.11	-0.02	-0.05	0.06	0.06
	(0.07)	(0.07)	(0.09)	(0.09)	(0.09)
$Post_t$	0.28^{***}	0.56^{***}			
	(0.07)	(0.13)			
$Treat_i \times SB_i \times Post_t$	-0.39^{***}	-0.42^{***}	-0.43^{***}	-0.40^{***}	-0.39^{***}
	(0.10)	(0.11)	(0.11)	(0.11)	(0.11)
$Treat_i \times SA_i \times Post_t$	-0.33^{***}	-0.41^{***}	-0.43^{***}	-0.30^{***}	-0.29^{***}
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t \times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter FE	No	No	Yes	Yes	Yes
Task FE	No	No	No	Yes	Yes
Industry FE	No	No	No	No	Yes
AIC	24092.14	23032.22			
BIC	24154.34	23155.53			
Log Likelihood	-12040.07	-11504.11			
Deviance	24080.14	23008.22	22995.84	20987.70	20875.73
Num. obs.	234573	214421	214421	190854	189989

Each observation is a project-quarter. SEs are robust and clustered at the project level. Sample restricted to fully competed projects.

Table 2: Full Competition

	$I(Delay_{it} < 0)$				
	(1)	(2)	(3)	(4)	(5)
Constant	-4.80^{***}	-4.65^{***}			
	(0.12)	(1.65)			
$Treat_i$	0.30^{*}	0.37^{**}	0.37^{**}	0.18	0.16
	(0.16)	(0.16)	(0.16)	(0.19)	(0.19)
SA_i	0.03	0.09	0.38^{*}	0.42^{**}	0.41^{**}
	(0.15)	(0.16)	(0.19)	(0.20)	(0.21)
$Post_t$	-0.10	-0.56			
	(0.16)	(1.67)			
$Treat_i \times SB_i \times Post_t$	-0.32	-0.35	-0.37	-0.43^{*}	-0.48^{*}
	(0.24)	(0.24)	(0.24)	(0.25)	(0.25)
$Treat_i \times SA_i \times Post_t$	-0.00	-0.12	-0.12	-0.24	-0.25
	(0.23)	(0.23)	(0.23)	(0.25)	(0.25)
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter FE	No	No	Yes	Yes	Yes
Task FE	No	No	No	Yes	Yes
Industry FE	No	No	No	No	Yes
AIC	5139.81	4985.84			
BIC	5193.07	5091.45			
Log Likelihood	-2563.90	-2480.92			
Deviance	5127.81	4961.84	4947.44	4138.81	4072.91
Num. obs.	52957	49067	49067	34410	33967

Each observation is a project-quarter. SEs are robust and clustered at the project level. Sample restricted to non-competed projects.

Table 3: Non-competitive projects

	$I(Delay_{it} < 0)$				
	(1)	(2)	(3)	(4)	(5)
Constant	-4.80^{***}	-5.57^{***}			
	(0.12)	(0.14)			
$Treat_i$	0.30^{*}	0.36^{**}	0.36^{**}	0.11	0.10
	(0.16)	(0.16)	(0.16)	(0.17)	(0.17)
$StartedAfterQP_i$	0.03	0.10	0.11	0.20	0.22
	(0.15)	(0.16)	(0.16)	(0.17)	(0.17)
$Competitive_i$	0.19	0.05	0.03	-0.06	-0.03
	(0.13)	(0.13)	(0.13)	(0.14)	(0.14)
$Post_t$	-0.10	0.21			
	(0.16)	(0.19)			
$Treat_i \times Competitive_i$	-0.53^{***}	-0.30^{*}	-0.30^{*}	-0.08	-0.07
	(0.18)	(0.18)	(0.18)	(0.19)	(0.19)
$Post_t \times Competitive_i$	0.39^{**}	0.32^{*}	0.34^{*}	0.10	0.10
	(0.17)	(0.18)	(0.17)	(0.18)	(0.18)
$StartedAfterQP_i \times Competitive_i$	-0.14	-0.12	-0.11	-0.11	-0.13
	(0.17)	(0.17)	(0.17)	(0.18)	(0.18)
$Treat_i \times Post_t$	-0.32	-0.34	-0.34	-0.45^{*}	-0.44^{*}
	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)
$Treat_i \times Post_t \times Competitive_i$	-0.07	-0.06	-0.07	0.05	0.06
	(0.26)	(0.26)	(0.26)	(0.27)	(0.27)
$Treat_i \times Post_t \times StartedAfterQP_i$	0.32	0.23	0.24	0.25	0.26
	(0.24)	(0.24)	(0.25)	(0.25)	(0.25)
$Treat_i \times Post_t \times StartedAfterQP_i \times Competitive_i$	-0.25	-0.22	-0.23	-0.16	-0.16
	(0.27)	(0.27)	(0.27)	(0.28)	(0.28)
Duration, Budget, Bids	No	Yes	Yes	Yes	Yes
$Post_t\times$ (Duration, Budget, Bids)	No	Yes	Yes	Yes	Yes
Year-Quarter FE	No	No	Yes	Yes	Yes
Task FE	No	No	No	Yes	Yes
Industry FE	No	No	No	No	Yes
AIC	29231.95	28016.45			
BIC	29358.78	28205.12			
Log Likelihood	-14603.97	-13990.23			
Deviance	29207.95	27980.45	27967.23	25636.76	25521.86
Num. obs.	287530	263488	263488	236352	235448

Each observation is a project-quarter. SEs are robust and clustered at the project level.

Table 4: Competition: Four-way Interaction