

Supplemental Online Appendix: Carbon Pricing Induces Innovation: Evidence from China's Regional Carbon Market Pilots

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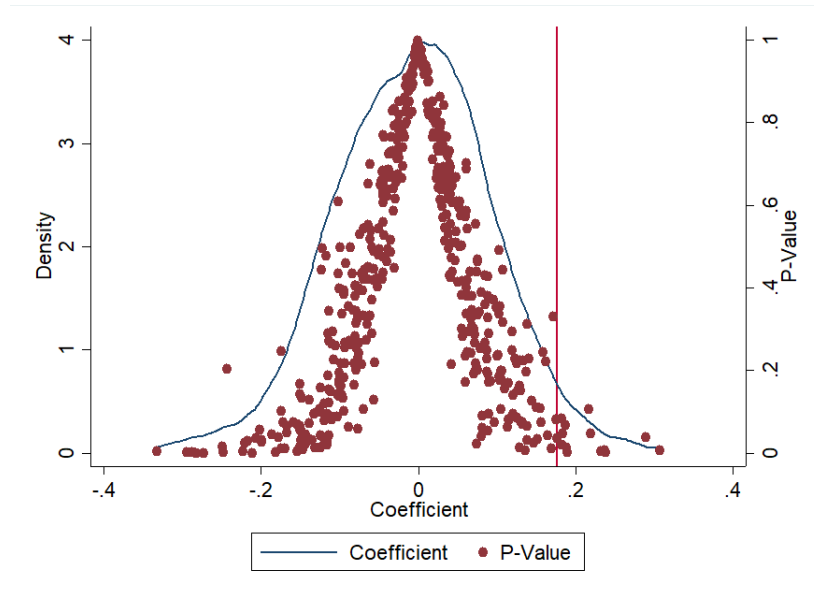


FIGURE A1. PLACEBO TESTS: THE KERNEL DENSITY OF 500 ESTIMATES

Note: X axis presents the estimated coefficients for the baseline DDD specification from the 500 randomized assignment of pseudo treated sectors and pseudo ETS zones. The blue curve is the kernel density distribution of the estimates, while the red dots are associated p-values. The red line is the true estimate from column (1) of Table 2.

TABLE A1—SUMMARY STATISTICS

Variables	N	Mean	Std.	Min	Max	ETS	NonETS
ln(EnvPat)	18937	0.29	0.71	0.00	5.89	0.39	0.25
ln(NonEnvPat)	18937	1.46	1.66	0.00	9.21	1.71	1.37
EnvPatRatio	18937	0.03	0.09	0.00	0.95	0.03	0.03
Assets	18813	21.37	1.37	12.31	28.51	21.46	21.34
Revenue	18806	20.87	1.49	11.60	28.69	20.97	20.83
ROA	15737	-3.18	1.12	-11.32	-0.39	-3.10	-3.21
Liability	18812	20.27	1.53	14.53	27.19	20.27	20.27
Capital Intensity	14557	12.48	1.07	5.56	20.57	12.54	12.45

Note: The last two columns report mean values for ETS pilots and Non-ETS pilots.

Source: Author calculations.

TABLE A2—ROBUSTNESS CHECKS

VARIABLES	ln(EnvPat)	ln(EnvPatRD)	ln(EnvPat)	ln(EnvPatRD)	ln(EnvPat)	ln(EnvPatRD)
	(1)	(2)	(3)	(4)	(5)	(6)
ETS×Sector×Post	0.142*	0.205				
	(0.077)	(0.137)				
Sector×ln(Price)			0.004*	0.007***		
			(0.002)	(0.002)		
ln(Price)			-0.002***	-0.002*		
			(0.001)	(0.001)		
Sector×Turnover					5.384	11.195**
					(3.694)	(4.988)
Turnover					-2.883***	-7.770***
					(0.862)	(2.692)
Constant	-2.359***	-8.521***	-2.369***	-8.482***	-2.369***	-8.371***
	(0.603)	(0.907)	(0.609)	(0.898)	(0.608)	(0.876)
Observations	14,378	9,459	14,378	9,459	14,378	9,459
R-squared	0.28	0.402	0.28	0.403	0.28	0.403
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Province-Year trend	Y	Y	Y	Y	Y	Y
Sector-Year trend	Y	Y	Y	Y	Y	Y

Note: Dependent variables are measured at firm-year level. *EnvPat* is the count of low-carbon patents in the areas of alternative energy production and energy conservation. *EnvPatRD* denotes the count of low carbon patent applications per R&D expenditure. *Sector* is binary indicator for the treated sectors. *Price* denotes carbon price for regional ETS pilots, and *Turnover* refers to the ratio of carbon trading volume on the secondary market to the total allowance. All columns include a series of firm-level control variables. The firm-level fixed effect, year fixed effect, province linear year trend, and industry linear year trend are included. Standard errors presented in the parenthesis are clustered at industry level. *** Significant at the 1 percent level, ** Significant at the 5 percent level, * Significant at the 10 percent level.

Source: Author calculations.