

Does information disclosure mitigate air pollution? Evidence from China

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Online Appendix

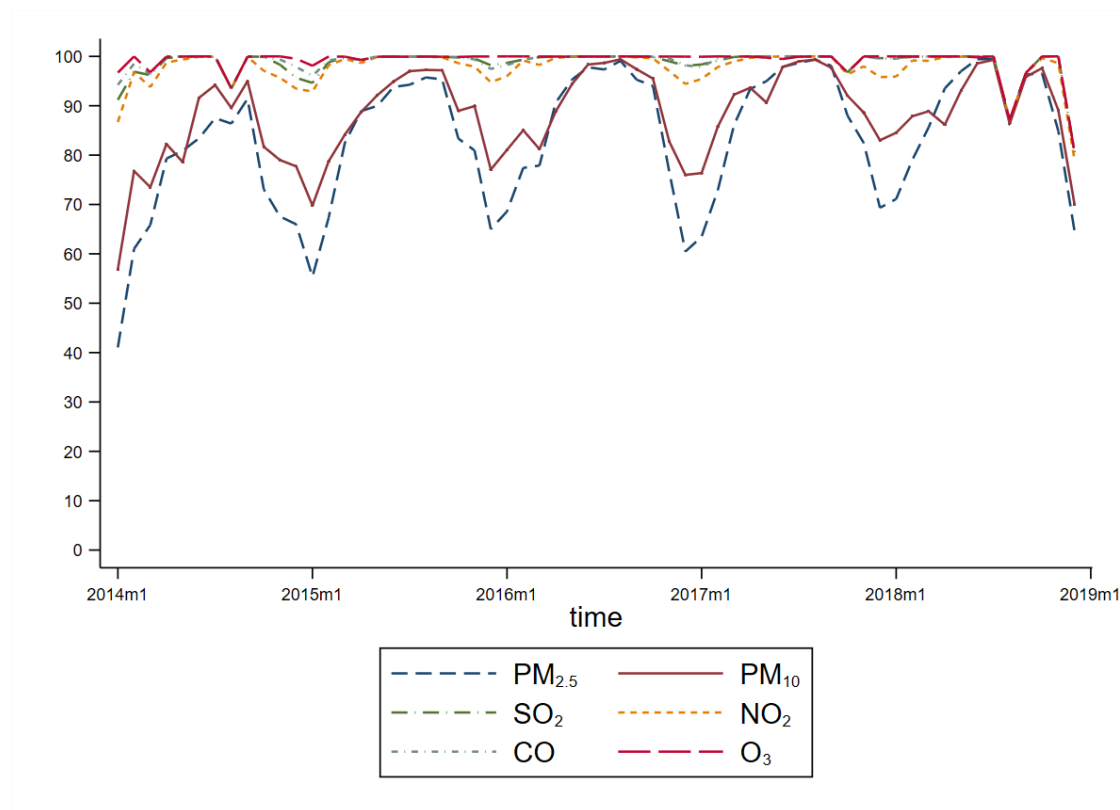


Figure A1. Monthly percentage of each pollutant qualified from 2014 to 2018 in China.

Notes: Data used in figure A1 come from the Ministry of Ecology and Environment of the People’s Republic of China. The official website releases daily concentration information of all pollutants in city-level. Based on the daily record, we calculate the percentage of days for each pollutant in each month to reach the emission standard from 2014 to 2018. If the concentration of a certain pollutant reaches the threshold of “light pollution”, it is unqualified. The thresholds to reach “light pollution” for each PM₁₀, PM_{2.5}, SO₂, NO₂, CO and O₃ are respectively 150 ug/m³, 75 ug/m³, 150 ug/m³, 80 ug/m³, 400 ug/m³ and 160 ug/m³.

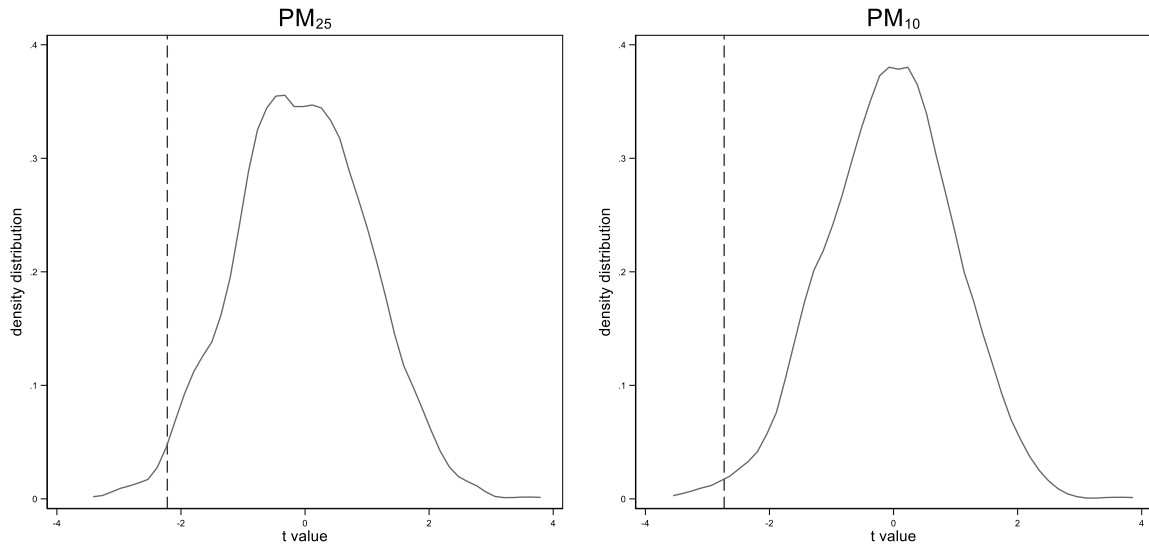


Figure A2. Placebo checks of each pollutant.

Notes: Figure A2 shows the placebo checks results of PM_{2.5} and PM₁₀, which represents the coefficient distributions based on 1000 estimations. The black vertical dotted lines represent the “correct” estimates of PM_{2.5} and PM₁₀, separately.

Table A1. Excluding the potential influence of other policies

Dependent variable	PM _{2.5}			PM ₁₀		
	(1)	(2)	(3)	(4)	(5)	(6)
Policy	-0.030 (0.010)	-0.018 (0.008)	-0.018 (0.008)	-0.027 (0.008)	-0.019 (0.007)	-0.019 (0.007)
PITI	0.017 (0.012)		0.000 (0.006)	0.012 (0.009)		0.000 (0.004)
Low carbon		0.014 (0.017)	0.014 (0.017)		0.006 (0.011)	0.006 (0.011)
City controls	Yes	Yes	Yes	Yes	Yes	Yes
Weather controls	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Control2012×Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,751	3,751	3,751	3,973	3,751	3,751
R-squared	0.924	0.973	0.973	0.924	0.970	0.970

Notes: 1. Table A1 presents the results that exclude policies which may potentially interfere with the results. PM_{2.5} and PM₁₀ separately represent the annual concentration of PM_{2.5} and PM₁₀ in logarithm. In columns (1) and (4) we report the results excluding the effects of the PITI policy. In columns (2) and (5) we report the results excluding the effects of low carbon cities. In columns (3) and (6) we report the results excluding both the effects of PITI and low carbon cities. City characteristics include average per capita GDP, fiscal expenditure of science, proportion of industry in GDP, and fiscal income. The weather controls include annual average precipitation, annual average surface temperature, annual average surface specific humidity, and annual average surface wind speed. The baseline regressions also control city level fixed effect, year fixed effect, and interaction of city control in 2012 and year fixed effects. 2. Robust standard errors in parentheses are clustered at the city level.

Table A2. Heterogeneity in the treatment effect over time

	PM25 Callaway and Sant'Anna (2021)	PM10 Callaway and Sant'Anna (2021)	PM25 De Chaisemartin and d'Haultfoeuille (2020)	PM10 De Chaisemartin and d'Haultfoeuille (2020)
	(1)	(2)	(3)	(4)
Policy	-0.124 (0.066)	-0.070 (0.037)	-0.111 (0.065)	-0.074 (0.039)
Observations	2,050	2,050	3,973	3,973
City controls	Yes	Yes	Yes	Yes
Weather controls	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Control ₂₀₁₂ ×Year fixed effect	Yes	Yes	Yes	Yes

Notes: In columns (1) and (2) in table A2 we present the estimator developed by Callaway and Sant'Anna (2021). Note that since the estimation is based on balanced panel data, the observations in columns (1) and (2) are fewer than the baseline regression. In columns (3) and (4) we run the estimator developed by De Chaisemartin and d'Haultfoeuille (2020).

References

Callaway B and Sant'Anna PH (2021) Difference-in-differences with multiple time periods.

Journal of Econometrics **225**, 200–230.

De Chaisemartin C and d'Haultfoeuille X (2020) Two-way fixed effects estimators with

heterogeneous treatment effects. *American Economic Review* **110**, 2964–2996.