

The Effect of Urban Agglomeration Expansion on PM_{2.5} Concentrations: Evidence from a Quasi-natural Experiment

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Table S1 Balance test of the matching variables

Variable	Unmatched / Matched	Mean		bias / %	t-test	
		Control	Treated		t	P > t
ln gdp	U	9.988	9.765	92.3	18.19	0.000
	M	9.972	10.052	7.00	0.84	0.405
ln $inno$	U	2.734	16.561	11.90	-3.50	0.000
	M	2.720	2.722	-1.90	-0.31	0.756
open	U	4.160	2.462	66.50	11.54	0.000
	M	4.158	4.041	4.70	0.50	0.620
urb	U	0.732	0.809	38.70	6.52	0.000
	M	0.636	0.696	6.90	0.92	0.356
ln $inds$	U	3.588	3.383	32.50	4.85	0.000
	M	3.588	3.664	-12.10	-1.40	0.163

Note: U, unmatched ; M, matched; variables explanation are shown in Table 1

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Table S2 Estimation results of urban agglomeration expansion influencing PM_{2.5} concentration in the Yangtze River Delta Urban Agglomeration, China based on radius matching and kernel matching

Variable	Radius matching			Kernel matching		
	All cities	Original cities	New cities	All cities	Original cities	New cities
	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Time	-0.033** (-2.19)	-0.045** (-2.24)	0.014*** (-3.23)	-0.036** (-2.62)	-0.044** (-2.23)	0.018** (2.51)
lngdp	0.063*** (4.80)	0.064*** (4.81)	0.061*** (4.78)	0.068*** (4.15)	0.068*** (4.15)	0.067*** (4.20)
urb	0.003* (1.78)	0.003* (1.72)	0.003* (1.75)	0.004* (1.78)	0.005* (1.71)	0.003* (1.71)
lninds	0.091** (2.23)	0.091** (2.45)	0.090** (2.44)	0.094** (2.88)	0.096** (2.88)	0.095** (2.89)
open	0.010*** (5.98)	0.010*** (5.83)	0.011*** (6.45)	0.008*** (4.91)	0.007*** (4.77)	0.008*** (5.34)
lninno	-0.021** (-2.01)	-0.021** (-2.00)	-0.021** (-2.05)	-0.014 (-1.45)	-0.014 (-1.44)	-0.014 (-1.48)
lngreen	-0.150** (-2.44)	-0.0150** (-2.42)	-0.015** (-2.47)	-0.012** (-2.19)	-0.011* (-1.96)	-0.012** (-2.00)
temp	0.019** (2.90)	0.019** (2.93)	0.019** (2.98)	0.025*** (3.95)	0.024*** (3.95)	0.025*** (3.97)
lnele	-0.003* (-1.78)	-0.003* (-1.79)	-0.003* (-1.78)	-0.003* (-1.81)	-0.003* (-1.80)	-0.002* (-1.75)
ws	-0.002 (-0.20)	-0.002 (-0.21)	-0.002 (-0.21)	-0.003 (-0.27)	-0.003 (-0.26)	-0.003 (-0.27)
lnhum	-0.045** (-2.73)	-0.044** (-2.72)	-0.041** (-2.66)	-0.022*** (-3.94)	-0.020 (-1.36)	-0.018 (-1.31)
Constant	3.590*** (10.99)	3.584*** (10.98)	3.561*** (10.92)	3.367*** (11.13)	3.363*** (11.11)	3.348*** (11.07)
City-fixed effect	Y	Y	Y	Y	Y	Y
Year-fixed effect	Y	Y	Y	Y	Y	Y
Obs.	4002	3457	3457	4002	4002	4002

Notes: *** $P < 0.01$, ** $P < 0.05$, * $P < 0.1$. Standard errors are in parentheses. Y is the abbreviation for yes; variables explanation are shown in [Table 1](#)