



SUPPLEMENTARY MATERIALS



Table S1. Mean effect of the variation in the Aerosol Optical Depth (AOD) on the Total respiratory disease hospitalization counts due to the burned area.

	IVc01			IVc02			IVc03			IVc04		
OLS												
AOD (OLS)	0.0443*** (0.0072)	0.0925*** (0.0072)	0.0455*** (0.0067)	0.0443*** (0.0072)	0.0925*** (0.0072)	0.0455*** (0.0067)	0.0443*** (0.0072)	0.0925*** (0.0072)	0.0455*** (0.0067)	0.0443*** (0.0072)	0.0925*** (0.0072)	0.0455*** (0.0067)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
IV												
AOD (2SLS)	0.1383*** (0.0294)	0.0771* (0.0321)	0.1359*** (0.0243)	0.1336*** (0.0315)	-0.9626*** (0.105)	0.1361*** (0.0262)	0.1401** (0.0466)	0.0942** (0.0322)	0.1389*** (0.0383)	0.0461 (0.1037)	-12.9107*** (2.5574)	2.2891 (3.1566)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
Fixed effect	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y
Controls	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Exogeneity and IV validity tests												
Exog	13.82***	0.24 ^{ns}	21.50***	11.59***	120.06***	20.07***	4.33*	0.0027 ^{ns}	5.58*	0.0006 ^{ns}	742.87***	7.18**
Overid	1.204 ^{ns}	779.886***	4.41 ^{ns}	0.774 ^{ns}	549.951***	4.409*	1.176 ^{ns}	741.718***	4.396*	-	-	-
Weak Instrument tests												
Joint	1103.36	945.817	2617.91	1396.41	250.833	1396.41	576.324	576	991.908	252.589	20.5295	252.589
Yogo: stat	1445.95	2087.78	2764.63	1703.26	330.615	1703.26	1045.85	1045.85	1729.91	282.652	26.7979	282.652
Yogo: crit	22.3	22.3	22.3	19.93	19.93	19.93	19.93	19.93	19.93	16.38	16.38	16.38

Notes: Set of instruments: IVc01 is the Log_Ba plus the BaWSpeed and the BaWDirec; IVc02 is the Log_Ba plus the BaWSpeed; IVc03 is the Log_Ba plus the BaWDirec, and; IVc04 is only Log_Ba. “Exog.”, computes a test of exogeneity for a fixed-effect regression estimated via instrumental variables; “Overid” is the Sargan-Hansen statistic for instrument overidentification test. “Joint”, for the joint significance test of the instruments in the first stage regression; “Yogo: stat”, is the value of the Stock and Yogo test for instrument weakness; “Yogo: crit”, is the table value for the Stock and Yogo test. Significance level: “****” p<0.001, “***” p<0.01, “**” p<0.05, “*” p<0.1, “ns” not significant.

Table S2. Mean effect of the variation in the Aerosol Optical Depth (AOD) on the hospitalization of Small Children due to the burned area.

	IVc01			IVc02			IVc03			IVc04		
OLS												
AOD (OLS)	0.0177** (0.0068)	0.0700*** (0.0056)	0.0222** (0.0073)	0.0177** (0.0068)	0.0700*** (0.0056)	0.0222** (0.0073)	0.0177** (0.0068)	0.0700*** (0.0056)	0.0222** (0.0073)	0.0177** (0.0068)	0.0700*** (0.0056)	0.0222** (0.0073)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
IV												
AOD (2SLS)	0.0760** (0.0271)	-0.0403 ^{ns} (0.0258)	0.1129*** (0.0241)	0.0761** (0.0292)	-0.4136*** (0.0797)	0.1187*** (0.0258)	-0.0210 ^{ns} (0.0476)	-0.0422 ^{ns} (0.0259)	0.0865* (0.0422)	-0.3381*** (0.1047)	-11.5719*** (2.2816)	5.6374 ^{ns} (7.5374)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
Fixed effect	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y
Controls	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Exogeneity and IV validity tests												
Exog	7.23**	19.35***	29.26***	6.73**	39.26***	30.77***	0.91 ^{ns}	19.84***	3.59.	20.9530***	929.26***	60.23***
Overid	21.757***	906.273***	32.163***	21.753***	833.464***	31.481***	15.014***	912.353***	31.604***	-	-	-
Weak Instrument tests												
Joint	1103.36	945.817	2617.91	1396.41	250.833	1396.41	576.324	576.324	991.908	252.589	20.5295	252.589
Yogo: stat	1445.95	2087.78	2764.63	1703.26	330.615	1703.26	1045.85	1045.85	1729.91	282.652	26.7979	282.652
Yogo: crit	22.3	22.3	22.3	19.93	19.93	19.93	19.93	19.93	19.93	16.38	16.38	16.38

Notes: Set of instruments: IVc01 is the Log_Ba plus the BaWSpeed and the BaWDirec; IVc02 is the Log_Ba plus the BaWSpeed; IVc03 is the Log_Ba plus the BaWDirec, and; IVc04 is only Log_Ba. “Exog.”, computes a test of exogeneity for a fixed-effect regression estimated via instrumental variables; “Overid” is the Sargan-Hansen statistic for instrument overidentification test. “Joint”, for the joint significance test of the instruments in the first stage regression; “Yogo: stat”, is the value of the Stock and Yogo test for instrument weakness; “Yogo: crit”, is the table value for the Stock and Yogo test. Significance level: “***” p<0.001, “**” p<0.01, “*” p<0.05, “.”p<0.1, “ns” not significant.

Table S3. Mean effect of the variation in the Aerosol Optical Depth (AOD) on the hospitalization of children due to the burned area.

	IVc01			IVc02			IVc03			IVc04		
OLS												
AOD (OLS)	-0.0061 ^{ns} (0.0051)	0.0500*** (0.0039)	-0.0047 (0.0053)	-0.0061 ^{ns} (0.0051)	0.0500*** (0.0039)	-0.0047 (0.0053)	-0.0061 ^{ns} (0.0051)	0.0500*** (0.0039)	-0.0047 (0.0053)	-0.0061 ^{ns} (0.0051)	0.0500*** (0.0039)	-0.0047 ^{ns} (0.0053)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
IV												
AOD (2SLS)	0.0094 ^{ns} (0.0201)	-0.0464* (0.0182)	0.0223 (0.0164)	0.0177 ^{ns} (0.0212)	-0.5826*** (0.0598)	0.0312. (0.0173)	-0.0765* (0.0364)	-0.0347. (0.0182)	-0.0291 ^{ns} (0.0306)	-0.1815* (0.0761)	-4.3372*** (0.8896)	2.7389 ^{ns} (3.7735)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
Fixed effect	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y
Controls	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Exogeneity and IV validity tests												
Exog	0.84 ^{ns}	29.78***	3.98*	1.79 ^{ns}	135.56***	6.48*	4.58*	22.86***	0.74 ^{ns}	7.6436**	264.49***	21.68***
Overid	10.966**	308.79***	20.107***	8.499**	167.23***	15.235***	2.895.	254.004***	15.81***	-	-	-
Weak Instrument tests												
Joint	1103.36	945.817	2617.91	1396.41	250.833	1396.41	576.324	576.324	991.908	252.589	20.5295	252.589
Yogo: stat	1445.95	2087.78	2764.63	1703.26	330.615	1703.26	0.0174	1045.85	1729.91	282.652	26.7979	282.652
Yogo: crit	22.3	22.3	22.3	19.93	19.93	19.93	19.93	19.93	19.93	16.38	16.38	16.38

Notes: Set of instruments: IVc01 is the Log_Ba plus the BaWSpeed and the BaWDirec; IVc02 is the Log_Ba plus the BaWSpeed; IVc03 is the Log_Ba plus the BaWDirec, and; IVc04 is only Log_Ba. "Exog.", computes a test of exogeneity for a fixed-effect regression estimated via instrumental variables; "Overid" is the Sargan-Hansen statistic for instrument overidentification test. "Joint", for the joint significance test of the instruments in the first stage regression; "Yogo: stat", is the value of the Stock and Yogo test for instrument weakness; "Yogo: crit", is the table value for the Stock and Yogo test. Significance level: "****" $p < 0.001$, "***" $p < 0.01$, "**" $p < 0.05$, "." $p < 0.1$, "ns" not significant.

Table S4. Mean effect of the variation in the Aerosol Optical Depth (AOD) on the hospitalization of the elderly due to the burned area.

	IVc01			IVc02			IVc03			IVc04		
OLS												
AOD(OLS)	0.0215*** (0.0051)	0.0218*** (0.0045)	0.0290*** (0.0052)	0.0215*** (0.0051)	0.0218*** (0.0045)	0.0290*** (0.0052)	0.0215*** (0.0051)	0.0218*** (0.0045)	0.0290*** (0.0052)	0.0215*** (0.0051)	0.0218*** (0.0045)	0.0290*** (0.0052)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
IV												
AOD(2SLS)	0.0428* (0.0206)	0.0344. (0.0204)	0.0590*** (0.0167)	0.0581** (0.0218)	0.3074*** (0.0624)	0.0722*** (0.0179)	-0.0596. (0.0352)	0.0187 (0.0205)	-0.0211 (0.0294)	-0.0720 (0.0719)	-6.2621*** (1.2516)	1.9639 (2.7017)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
Fixed effect	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y
Controls	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Exogeneity and IV validity tests:												
Exog	1.47 ^{ns}	0.40***	4.77*	3.94*	21.74***	9.11**	6.02*	0.02	3.15.	2.1189 ^{ns}	428.08***	10.58**
Overid	12.241**	508.117***	17.086***	3.733.	470.484***	7276**	0.041 ^{ns}	428.019***	7.856**	-	-	-
Week Instrument tests:												
Joint	1103.36	945.817	2617	1396.41	250.833	1396.41	576.324	576.324	991.908	252.589	20.5295	252.589
Yogo: stat	1445.95	2087	2764	1703.26	330.615	1703.26	1045.85	1045.85	1729.91	282.652	26.7979	282.652
Yogo: crit	22.3	22.3	22.3	19.93	19.93	19.93	19.93	19.93	19.93	16.38	16.38	16.38

Notes: Set of instruments: IVc01 is the Log_Ba plus the BaWSpeed and the BaWDirec; IVc02 is the Log_Ba plus the BaWSpeed; IVc03 is the Log_Ba plus the BaWDirec, and; IVc04 is only Log_Ba. “Exog.”, computes a test of exogeneity for a fixed-effect regression estimated via instrumental variables; “Overid” is the Sargan-Hansen statistic for instrument overidentification test. “Joint”, for the joint significance test of the instruments in the first stage regression; “Yogo: stat”, is the value of the Stock and Yogo test for instrument weakness; “Yogo: crit”, is the table value for the Stock and Yogo test. Significance level: “****” p<0.001, “***” p<0.01, “**” p<0.05, “*” p<0.1, “ns” not significant.

Table S5. Mean effect of the variation in the Aerosol Optical Depth (AOD) on the Asthma hospitalizations due to the burned area.

	IVc01			IVc02			IVc03			IVc04		
OLS												
AOD(OLS)	0.0265*** (0.006)	0.0532*** (0.0047)	0.0295*** (0.0059)	0.0265*** (0.006)	0.0532*** (0.0047)	0.0295*** (0.0059)	0.0265*** (0.006)	0.0532*** (0.0047)	0.0295*** (0.0059)	0.0265*** (0.006)	0.0532*** (0.0047)	0.0295*** (0.0059)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
IV												
AOD(2SLS)	0.0792*** (0.0244)	-0.0356 (0.0217)	0.0844*** (0.0204)	0.0865*** (0.0254)	-0.9181*** (0.0754)	0.0921*** (0.0214)	0.0147 (0.0433)	-0.0111 (0.0218)	0.0394 (0.0352)	-0.0423 (0.0843)	-2.4134*** (0.5755)	2.3085 (3.2576)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
Fixed effect	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y
Controls	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Exogeneity and IV validity tests												
Exog	6.63**	17.72***	11.53***	7.96**	224.02***	13.95***	0.09 ^{ns}	9.21**	0.09 ^{ns}	0.8569 ^{ns}	58.47***	10.87***
Overid	3.5598 ^{ns}	228.13***	8.627*	2.52 ^{ns}	16.728***	7.011**	0.727 ^{ns}	55.595***	7.406**	-	-	-
Week Instrument tests:												
Joint	1103.36	945.817	2617	1396.41	250.833	1396.41	576.324	576.324	991.908	252.589	20.5295	252.589
Yogo: stat	1445.95	2087.78	2764	1703.26	330.615	1703.26	1045.85	1045.85	1729.91	282.652	26.7979	282.652
Yogo: crit	22.3	22.3	22.3	19.93	19.93	19.93	19.93	19.93	19.93	16.38	16.38	16.38

Notes: Set of instruments: IVc01 is the Log_Ba plus the BaWSpeed and the BaWDirec; IVc02 is the Log_Ba plus the BaWSpeed; IVc03 is the Log_Ba plus the BaWDirec, and; IVc04 is only Log_Ba. “Exog.”, computes a test of exogeneity for a fixed-effect regression estimated via instrumental variables; “Overid” is the Sargan-Hansen statistic for instrument overidentification test. “Joint”, for the joint significance test of the instruments in the first stage regression; “Yogo: stat”, is the value of the Stock and Yogo test for instrument weakness; “Yogo: crit”, is the table value for the Stock and Yogo test. Significance level: “***” p<0.001, “**” p<0.01, “*” p<0.05, “.”p<0.1, “ns” not significant.

Table S6. Mean effect of the variation in the Aerosol Optical Depth (AOD) on the Pneumonia hospitalizations due to the burned area.

	IVc01			IVc02			IVc03			IVc04		
OLS												
AOD (OLS)	0.0594*** (0.0069)	0.0244*** (0.0064)	0.0663*** (0.0069)	0.0594*** (0.0069)	0.0244*** (0.0064)	0.0663*** (0.0069)	0.0594*** (0.0069)	0.0244*** (0.0064)	0.0663*** (0.0069)	0.0594*** (0.0069)	0.0244*** (0.0064)	0.0663*** (0.0069)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
IV												
AOD (2SLS)	0.1207*** (0.0281)	-0.1005*** (0.0287)	0.1544*** (0.0242)	0.1285*** (0.0303)	-0.4372*** (0.088)	0.1655*** (0.0262)	0.0122 ^{ns} (0.0477)	-0.1046*** (0.0288)	0.0928* (0.0396)	-0.1790 ^{ns} (0.1098)	-12.6441*** (2.4844)	5.2789 ^{ns} (6.9921)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
Fixed effect	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y
Controls	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Exogeneity and IV validity tests												
Exog	6.36*	20.07***	22.24***	7.51**	28.92***	26.26***	1.13 ^{ns}	21.25***	0.49 ^{ns}	7.6513**	889.09***	42.23***
Overid	11.308**	868***	27.217***	9.99**	818.263***	23.546***	4.768*	865.478***	23.765***	-	-	-
Week Instrument tests:												
Joint	110336	945.817	2617	1396	250.833	1396.41	576.324	576.324	991.908	252.589	20.5295	252.589
Yogo: stat	1445.95	2087	2764	1703	330.615	1703.26	1045	1045.85	1729.91	282.652	26.7979	282.652
Yogo: crit	22.3	22.3	22.3	19.93	19.93	19.93	19.93	19.93	19.93	16.38	16.38	16.38

Notes: Set of instruments: IVc01 is the Log_Ba plus the BaWSpeed and the BaWDirec; IVc02 is the Log_Ba plus the BaWSpeed; IVc03 is the Log_Ba plus the BaWDirec, and; IVc04 is only Log_Ba. "Exog.", computes a test of exogeneity for a fixed-effect regression estimated via instrumental variables; "Overid" is the Sargan-Hansen statistic for instrument overidentification test. "Joint", for the joint significance test of the instruments in the first stage regression; "Yogo: stat", is the value of the Stock and Yogo test for instrument weakness; "Yogo: crit", is the table value for the Stock and Yogo test. Significance level: "****" $p < 0.001$, "***" $p < 0.01$, "**" $p < 0.05$, "." $p < 0.1$, "ns" not significant.

Table S7. Mean effect of the variation in the Aerosol Optical Depth (AOD) on the Bronchitis hospitalizations due to the burned area.

	IVc01			IVc02			IVc03			IVc04		
OLS												
AOD (OLS)	0.0103** (0.0032)	0.0075*** (0.002)	0.0121*** (0.0037)	0.0103** (0.0032)	0.0075*** (0.002)	0.0121*** (0.0037)	0.0103** (0.0032)	0.0075*** (0.002)	0.0121*** (0.0037)	0.0103** (0.0032)	0.0075*** (0.002)	0.0121*** (0.0037)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
IV												
AOD (2SLS)	0.0011 ^{ns} (0.0139)	0.0111 ^{ns} (0.0099)	0.0072 ^{ns} (0.0127)	-0.0023 ^{ns} (0.0151)	-0.0958*** (0.0299)	0.0046 (0.0138)	0.0169 ^{ns} (0.0215)	0.0149 ^{ns} (0.0099)	0.0240 ^{ns} (0.0191)	-0.0020 ^{ns} (0.0412)	0.4608** (0.1709)	0.1545 ^{ns} (0.4591)
# obs.	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335	118,335
Fixed effect	Y	N	Y	Y	N	Y	Y	N	Y	Y	N	Y
Controls	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Exogeneity and IV validity tests												
Exog	0.60 ^{ns}	0.14 ^{ns}	0.28 ^{ns}	1.06 ^{ns}	12.24***	0.62 ^{ns}	0.11 ^{ns}	0.59 ^{ns}	0.46 ^{ns}	0.0867 ^{ns}	9.54**	0.14 ^{ns}
Overid	0.854 ^{ns}	29.635***	1.042 ^{ns}	0 ^{ns}	14.716***	0.127 ^{ns}	0.276 ^{ns}	9.267**	0.095 ^{ns}	-	-	-
Week Instrument tests:												
Joint	1103.36	945.817	2617.91	1396.41	250.833	1396.41	576.324	576	991.908	252.589	20.5295	252.589
Yogo: stat	1445.95	2087.78	2764.63	1703.26	330615	1703.26	1045	1045	1729.91	282.652	26.7979	282.652
Yogo: crit	22.3	22.3	22.3	19.93	19.93	19.93	19.93	19.93	19.93	16.38	16.38	16.38

Notes: Set of instruments: IVc01 is the Log_Ba plus the BaWSpeed and the BaWDirec; IVc02 is the Log_Ba plus the BaWSpeed; IVc03 is the Log_Ba plus the BaWDirec, and; IVc04 is only Log_Ba. “Exog.”, computes a test of exogeneity for a fixed-effect regression estimated via instrumental variables; “Overid” is the Sargan-Hansen statistic for instrument overidentification test. “Joint”, for the joint significance test of the instruments in the first stage regression; “Yogo: stat”, is the value of the Stock and Yogo test for instrument weakness; “Yogo: crit”, is the table value for the Stock and Yogo test. Significance level: “***” p<0.001, “**” p<0.01, “*” p<0.05, “.”p<0.1, “ns” not significant.