**Appendix 1. Complete set of parameter estimates**

Table A1 presents the full results from our baseline specification. The attributes associated with residential location choice, besides proximity to the AOC, are proximity to Superfund sites, highways, education, income, and race. Proximity to a Superfund site is associated with greater housing demand among White households, and lower housing demand among Black households. The positive coefficients for the percent over 25 with a bachelor’s degree indicate that White, Black, and Hispanic owners are more likely to locate in areas with college-educated households, which is not true for renters. Higher median household income is positively associated with willingness to pay. The coefficients for percent Black indicate that White owners tend to avoid locations with higher percentages of Black residents, while renters, Hispanic residents, and Black residents are less discriminating. Finally, the coefficients for Hispanic percent tell us that White and to a lesser degree Hispanic, but not Black, households tend to avoid locations with a higher percentage of Hispanic residents.

Table A1. Complete set of parameter estimates from the second stage of the model.

|  |  |  |  |
| --- | --- | --- | --- |
| Attributes | Focal point area | Downstream area | Extended downstream area |
| 1/d | -21.90  (42.30) | -11.78  (43.99) | -46.82  (41.31) |
| ×Renter | 10.01  (43.52) | 7.72  (44.81) | 0.41  (44.81) |
| ×Black | 70.98  (53.53) | 78.56  (55.36) | 83.05  (54.74) |
| ×Hispanic | -24.24  (47.14) | -28.25  (47.87) | -20.59  (47.42) |
| Cleanup×1/d | -383.51\*  (207.92) | -333.27\*\*  (123.76) | 197.86  (128.93) |
| ×Renter | 349.81\*\*  (162.66) | 189.05\*  (107.08) | -6.70  (122.05) |
| ×Black | 223.16  (211.78) | -37.45  (138.41) | -89.25  (153.46) |
| ×Hispanic | -17.30  (207.95) | 27.89  (125.53) | -108.91  (144.16) |
| Cleanup×1/d×Post | 206.01  (276.76) | 365.57\*\*  (168.56) | -192.52  (153.78) |
| ×Renter | -86.63  (242.52) | -341.09\*\*  (177.74) | 165.15  (167.19) |
| ×Black | -31.35  (287.23) | 135.24  (197.29) | 61.37  (203.30) |
| ×Hispanic | -210.85  (301.44) | 78.44  (234.42) | 142.40  (207.39) |
| Post | 449.17\*\*  (224.42) | 319.66  (234.50) | 655.96\*\*  (234.14) |
| ×Renter | 659.42\*\*  (218.20) | 791.36\*\*  (228.81) | 502.65\*\*  (227.40) |
| ×Black | 1259.50\*\*  (268.51) | 1178.09\*\*  (282.25) | 1198.42\*\*  (280.38) |
| ×Hispanic | 903.00\*\*  (260.24) | 843.57\*\*  (272.89) | 769.33\*\*  (271.87) |
| Freeway | 143.19  (279.63) | 81.06  (270.77) | 98.06  (265.97) |
| ×Renter | -398.39  (278.09) | -354.98  (269.78) | -362.69  (267.85) |
| ×Black | 411.78  (344.75) | 433.22  (334.49) | 447.37  (331.12) |
| ×Hispanic | 437.56  (322.66) | 448.26  (313.01) | 436.36  (310.98) |
| Shoreline | -935.04  (742.95) | -1040.76  (750.38) | -702.75  (772.65) |
| ×Renter | 752.31  (769.51) | 767.97  (774.91) | 846.41  (788.88) |
| ×Black | 661.25  (1000.25) | 639.12  (1006.55) | 522.40  (1028.46) |
| ×Hispanic | -183.26  (888.65) | -144.48  (895.92) | -256.13  (915.76) |
| Superfund | 639.00\*\*  (308.67) | 651.47\*\*  (297.60) | 595.33\*\*  (298.24) |
| ×Renter | -59.48  (313.24) | -28.92  (311.16) | -100.84  (320.52) |
| ×Black | -1115.55\*\*  (421.34) | -1083.67\*\*  (428.06) | -1053.57\*\*  (434.69) |
| ×Hispanic | -529.19  (360.27) | -486.22  (343.76) | -509.68  (357.98) |
| Percent over 25 years with bachelor’s degree | 78.45\*\*  (8.45) | 82.30\*\*  (9.10) | 74.87\*\*  (9.63) |
| ×Renter | -79.49 \*\*  (8.60) | -80.94\*\*  (9.21) | -82.64\*\*  (9.69) |
| ×Black | 29.12 \*\*  (10.47) | 28.22\*\*  (11.15) | 31.10\*\*  (11.77) |
| ×Hispanic | 16.84\*  (10.04) | 15.79  (10.73) | 19.06\*  (11.25) |
| Median household income | 0.11\*\*  (0.01) | 0.11\*\*  (0.01) | 0.11\*\*  (0.01) |
| ×Renter | -0.04\*\*  (0.01) | -0.04\*\*  (0.01) | -0.04\*  (0.01) |
| ×Black | -0.01  (0.02) | -0.01  (0.02) | -0.01  (0.02) |
| ×Hispanic | -0.01  (0.01) | -0.01  (0.01) | -0.01  (0.01) |
| Percent Black | -17.12\*\*  (3.97) | -17.19\*\*  (3.96) | -18.48\*\*  (3.98) |
| ×Renter | 9.10\*\*  (3.86) | 9.47\*\*  (3.83) | 9.52\*\*  (3.85) |
| ×Black | 18.72\*\*  (4.89) | 19.20\*\*  (4.83) | 19.56\*\*  (4.84) |
| ×Hispanic | 7.58\*  (4.54) | 7.24  (4.52) | 7.68\*  (4.56) |
| Percent Hispanic | -19.59\*\*  (5.01) | -19.71\*\*  (5.02) | -22.69\*\*  (4.91) |
| ×Renter | 0.10  (4.89) | 1.18  (4.88) | 1.86  (4.81) |
| ×Black | 21.47\*\*  (6.23) | 22.68\*\*  (6.19) | 23.34\*\*  (6.10) |
| ×Hispanic | 9.31  (5.86) | 8.18  (5.88) | 9.27  (5.80) |
| Renter | 5851.81\*\*  (508.14) | 5813.42\*\*  (506.39) | 5913.50\*\*  (505.49) |
| Black | -619.22  (648.55) | -611.29  (645.88) | -594.72  (645.38) |
| Hispanic | 293.16  (580.12) | 301.43  (577.42) | 364.02  (578.00) |
| ln(M) | 1  (constrained) | 1  (constrained) | 1  (constrained) |
| Observations | 1,668 | 1,668 | 1,668 |

\* and \*\* indicate significantly different from zero at the 10% and 5% levels, respectively.

**Appendix 2. Sensitivity analyses**

This appendix presents the results of our sensitivity analyses. Note that we carried out five analyses to test the sorting models, and the first analysis (where we equate the renter and owner moving cost) is presented with the main results, in Table 6. In Tables A2 through A7, we present the results of three analyses that use alternative moving cost calculations. Tables A8 and A9 report results when we include rather than drop locations with zero residents for specific race and tenure groups. For each sensitivity analysis we present two tables; the moving cost parameters from the first stage and the regression results from the second stage.

Our first sensitivity analysis calculates the time value of moving cost using a speed of fifteen miles per hour, rather than forty-five miles per hour. Results are shown in Tables A2 and A3. Given that our driving speed of 45 mph may have been an overestimate, we tested our analysis with a lower speed and found that our results changed very little. Like our original analysis, the downstream area is the only treatment area with significant results. The coefficient of *cleanup×1/d×post* is largely unchanged compared to the benchmark analysis (365.57 vs 366.06), while the coefficient of *cleanup×1/d×post×renter* is barely higher in the benchmark analysis (-341.09 vs. -342.40).

Table A2. Moving costs parameter (marginal utility of income) estimates from the first stage.

|  |  |  |
| --- | --- | --- |
| Group | 2000-2010 | 2010-2020 |
| Black owners | 0.00472 | 0.00645 |
| Black renters | 0.00145 | 0.00119 |
| Hispanic owners | 0.00245 | 0.00181 |
| Hispanic renters | 0.00217 | 0.00174 |
| White owners | 0.00238 | 0.00207 |
| White renters | 0.00155 | 0.00145 |

Table A3. AOC proximity effects in the second stage.

|  |  |  |  |
| --- | --- | --- | --- |
| Attributes | Focal point area | Downstream area | Extended downstream area |
| 1/d | -21.55  (42.53) | -11.52  (44.20) | -46.25  (41.61) |
| ×Renter | 9.13  (43.49) | 7.03  (44.71) | -0.92  (44.95) |
| ×Black | 71.96  (53.40) | 79.26  (55.14) | 84.70  (54.76) |
| ×Hispanic | -24.64  (47.42) | -28.61  (48.13) | -21.07  (47.81) |
| Cleanup×1/d | -384.37\*  (209.25) | -332.82\*\*  (124.03) | 195.95  (129.25) |
| ×Renter | 352.25\*\*  (163.86) | 188.19\*  (107.38) | -2.60  (122.08) |
| ×Black | 218.52  (213.70) | -36.04  (138.93) | -94.91  (153.49) |
| ×Hispanic | -17.03  (209.06) | 27.97  (125.74) | -109.13  (144.39) |
| Cleanup×1/d×Post | 206.66  (277.38) | 366.06\*\*  (169.29) | -189.95  (154.17) |
| ×Renter | -88.39  (242.78) | -342.40\*  (179.14) | 159.71  (167.31) |
| ×Black | -30.97  (288.02) | 136.48  (199.56) | 67.28  (203.43) |
| ×Hispanic | -208.43  (302.34) | 78.31  (235.13) | 143.82  (207.86) |
| Observations | 1,668 | 1,668 | 1,668 |

Standard errors in parentheses below coefficients. \* and \*\* indicate significance at the 10% and 5% levels, respectively.

In our second sensitivity analysis, we estimate the model after removing the $20 search cost from our moving cost calculations to check the effect of search cost on the results. The results can be found in Tables A4 and A5. The regression results of our benchmark analysis (Table 4) and the sensitivity analysis (Table A5) are similar, indicating that our results are not sensitive to removing the search cost. The coefficients of *cleanup×1/d×post* (365.57 vs 366.83) and *cleanup×1/d×post×renter* (-341.09 vs. -338.76) are similar in both analyses. Thus, we do not believe that our search cost assumption significantly affects the results.

Table A4. Moving costs parameter (marginal utility of income) estimates from the first stage.

|  |  |  |
| --- | --- | --- |
| Group | 2000-2010 | 2010-2020 |
| Black owners | 0.00477 | 0.00645 |
| Black renters | 0.00154 | 0. 00125 |
| Hispanic owners | 0.00248 | 0.00184 |
| Hispanic renters | 0.00228 | 0.00183 |
| White owners | 0.00240 | 0.00211 |
| White renters | 0.00168 | 0.00146 |

Table A5. AOC proximity effects in the second stage.

|  |  |  |  |
| --- | --- | --- | --- |
| Attributes | Focal point area | Downstream area | Extended downstream area |
| 1/d | -20.95  (42.53) | -10.94  (44.24) | -45.52  (41.46) |
| ×Renter | 10.88  (43.22) | 8.58  (44.46) | 0.45  (44.45) |
| ×Black | 70.59  (53.04) | 77.74  (54.84) | 82.78  (54.17) |
| ×Hispanic | -25.22  (47.28) | -29.02  (48.03) | -21.78  (47.42) |
| Cleanup×1/d | -378.83\*  (204.29) | -331.94\*\*  (122.14) | 195.00  (128.16) |
| ×Renter | 352.31\*\*  (159.99) | 190.07\*  (105.87) | -2.69  (121.09) |
| ×Black | 208.91  (207.59) | -35.94  (136.46) | -91.84  (151.80) |
| ×Hispanic | -19.40  (203.90) | 25.89  (124.08) | -107.78  (143.40) |
| Cleanup×1/d×Post | 207.25  (270.77) | 366.83\*\*  (168.06) | -188.53  (153.42) |
| ×Renter | -87.67  (237.39) | -338.76\*  (177.70) | 164.69  (166.47) |
| ×Black | -33.51  (280.10) | 133.46  (197.26) | 63.60  (202.00) |
| ×Hispanic | -207.25  (292.96) | 77.04  (233.29) | 141.16  (206.93) |
| Observations | 1,668 | 1,668 | 1,668 |

Standard errors in parentheses below coefficients. \* and \*\* indicate significance at the 10% and 5% levels, respectively.

We could have underestimated moving cost by ignoring the psychological attachment that residents may have for their neighborhood, so we estimated the model again after adding $500 to the moving costs used in the first stage. Tables A6 and A7 present the results. Focusing on the estimates that assume remediation affects the downstream area, the differences in coefficients of *cleanup×1/d×post* (365.57 vs 366.21) and *cleanup×1/d×post×renter* (-341.09 vs. -342.14) are not large enough to suggest that our results are sensitive to the psychological cost of moving.

Table A6. Moving costs parameter (marginal utility of income) estimates from the first stage.

|  |  |  |
| --- | --- | --- |
| Group | 2000-2010 | 2010-2020 |
| Black owners | 0.00471 | 0.00645 |
| Black renters | 0.00146 | 0.00120 |
| Hispanic owners | 0.00246 | 0.00182 |
| Hispanic renters | 0.00218 | 0.00174 |
| White owners | 0.00237 | 0.00208 |
| White renters | 0.00155 | 0.00146 |

Table A7. AOC proximity effects in the second stage.

|  |  |  |  |
| --- | --- | --- | --- |
| Attributes | Focal point area | Downstream area | Extended downstream area |
| 1/d | -21.55  (42.53) | -11.52  (44.20) | -46.25  (41.60) |
| ×Renter | 9.22  (43.47) | 7.11  (44.70) | -0.84  (44.92) |
| ×Black | 71.93  (53.39) | 79.23  (55.13) | 84.65  (54.73) |
| ×Hispanic | -24.63  (47.41) | -28.59  (48.12) | -21.05  (47.78) |
| Cleanup×1/d | -384.66\*  (209.17) | -332.84\*\*  (124.01) | 195.92  (129.19) |
| ×Renter | 352.58\*\*  (163.74) | 188.24\*  (107.34) | -2.63  (122.04) |
| ×Black | 218.64  (213.51) | -36.02  (138.87) | -94.76  (153.42) |
| ×Hispanic | -16.81  (208.91) | 27.95  (125.69) | -109.13  (144.33) |
| Cleanup×1/d×Post | 207.39  (277.10) | 366.21\*\*  (169.27) | -189.82  (154.13) |
| ×Renter | -88.78  (242.52) | -342.14\*  (179.08) | 160.00  (167.27) |
| ×Black | -31.88  (287.66) | 136.27  (199.47) | 67.04  (203.36) |
| ×Hispanic | -208.79  (301.89) | 78.10  (235.05) | 143.66  (207.81) |
| Observations | 1,668 | 1,668 | 1,668 |

Standard errors in parentheses below coefficients. \* and \*\* indicate significance at the 10% and 5% levels, respectively.

Finally, we test the sensitivity of the models to the exclusion of locations with a population of zero by replacing the zeros with 0.1. Results are presented in tables A8 and A9. In the area downstream of cleanup, the coefficient of *cleanup×1/d×post* is lower and less significant in this sensitivity analysis (365.57 vs 355.90). The coefficient on *cleanup×1/d×post×renter* (-341.09 vs. -306.70) is slightly higher in the sensitivity analysis. Furthermore, the coefficients on *cleanup×1/d×post* and *cleanup×1/d×post×renter* in the extended downstream area are significant when we replace missing populations with 0.1. In the extended downstream area, the coefficient of *cleanup×1/d×post* is lower and significant (-192.52 vs -329.14) and the coefficient of *cleanup×1/d×post×renter* is higher and significant in the sensitivity analysis (165.15 vs 366.41). For the extended downstream area, the analysis does appear to be sensitive to the exclusion of the missing populations. This suggests that a negative relationship between improved water quality and WTP may exist in the extended downstream area, but it is driven by the locations that were excluded in our main analysis.

Table A8. Moving costs parameter (marginal utility of income) estimates from the first stage.

|  |  |  |
| --- | --- | --- |
| Group | 2000-2010 | 2010-2020 |
| Black owners | 0.00472 | 0.00707 |
| Black renters | 0.00146 | 0.00119 |
| Hispanic owners | 0.00245 | 0.00180 |
| Hispanic renters | 0.00218 | 0.00174 |
| White owners | 0.00237 | 0.00208 |
| White renters | 0.00155 | 0.00146 |

Table A9. AOC proximity effects in the second stage.

|  |  |  |  |
| --- | --- | --- | --- |
| Attributes | Focal point area | Downstream area | Extended downstream area |
| 1/d | -27.86  (39.57) | -22.23  (40.22) | -49.15  (38.94) |
| ×Renter | 22.45  (38.27) | 26.51  (38.65) | 6.91  (38.15) |
| ×Black | 37.05  (50.18) | 44.35  (50.83) | 56.95  (50.82) |
| ×Hispanic | -54.66  (43.83) | -56.09  (44.23) | -43.68  (43.72) |
| Cleanup×1/d | -448.70\*\*  (221.98) | -363.67\*\*  (131.91) | 221.26\*  (126.75) |
| ×Renter | 397.47\*\*  (171.52) | 208.37\*  (110.12) | -48.03  (119.20) |
| ×Black | 281.70  (218.74) | -4.23  (143.05) | -89.37  (151.57) |
| ×Hispanic | -16.07  (224.80) | 42.48  (132.37) | -30.92  (142.52) |
| Cleanup×1/d×Post | -26.67  (373.91) | 355.90\*  (179.99) | -329.14\*\*  (158.71) |
| ×Renter | 108.16  (282.81) | -306.70\*  (181.96) | 366.41\*\*  (168.68) |
| ×Black | 134.63  (358.17) | -0.74  (224.24) | 44.79  (204.25) |
| ×Hispanic | -225.19  (375.11) | -119.50  (208.95) | -80.86  (200.95) |
| Observations | 1,836 | 1,836 | 1,836 |

Standard errors in parentheses below coefficients. \* and \*\* indicate significance at the 10% and 5% levels, respectively.