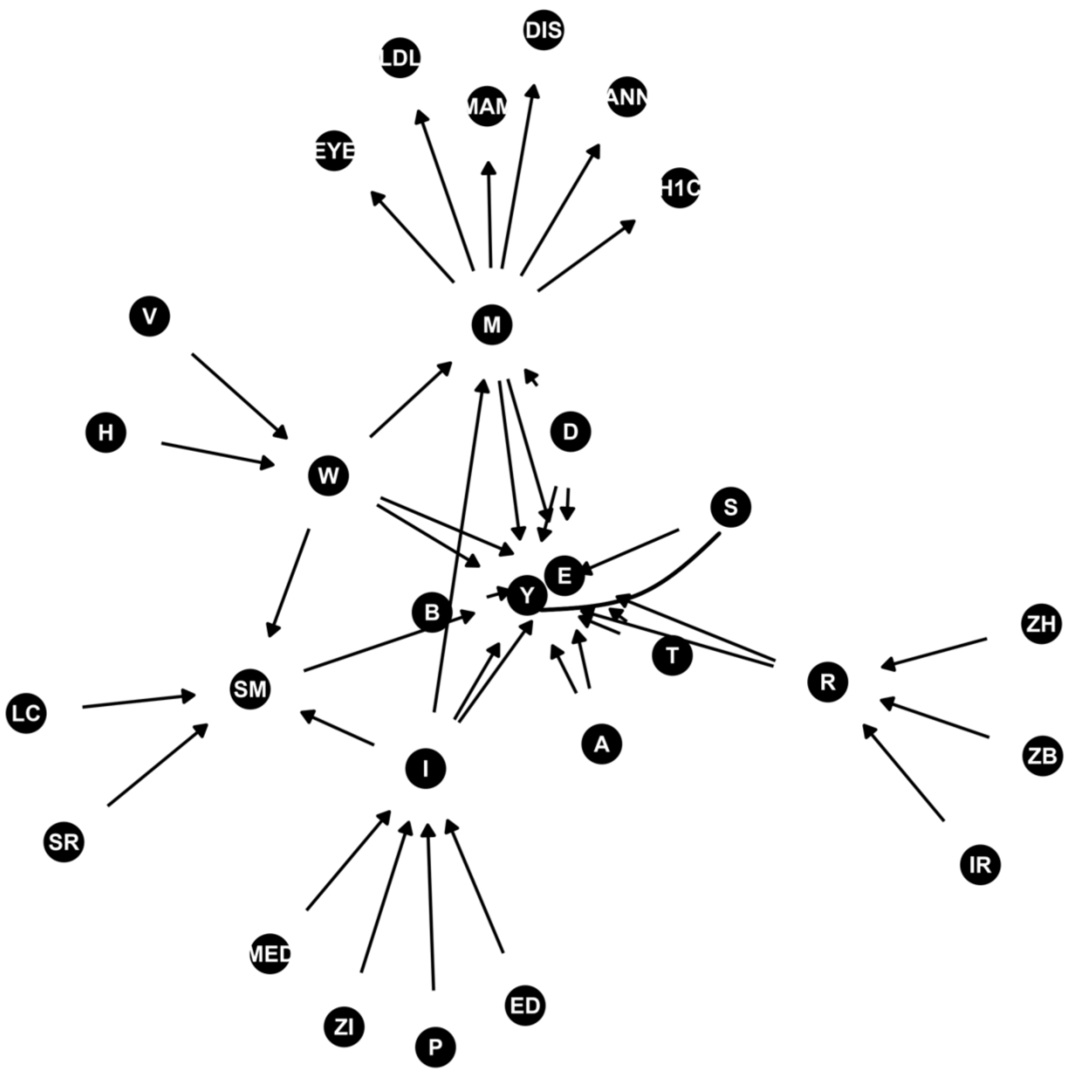
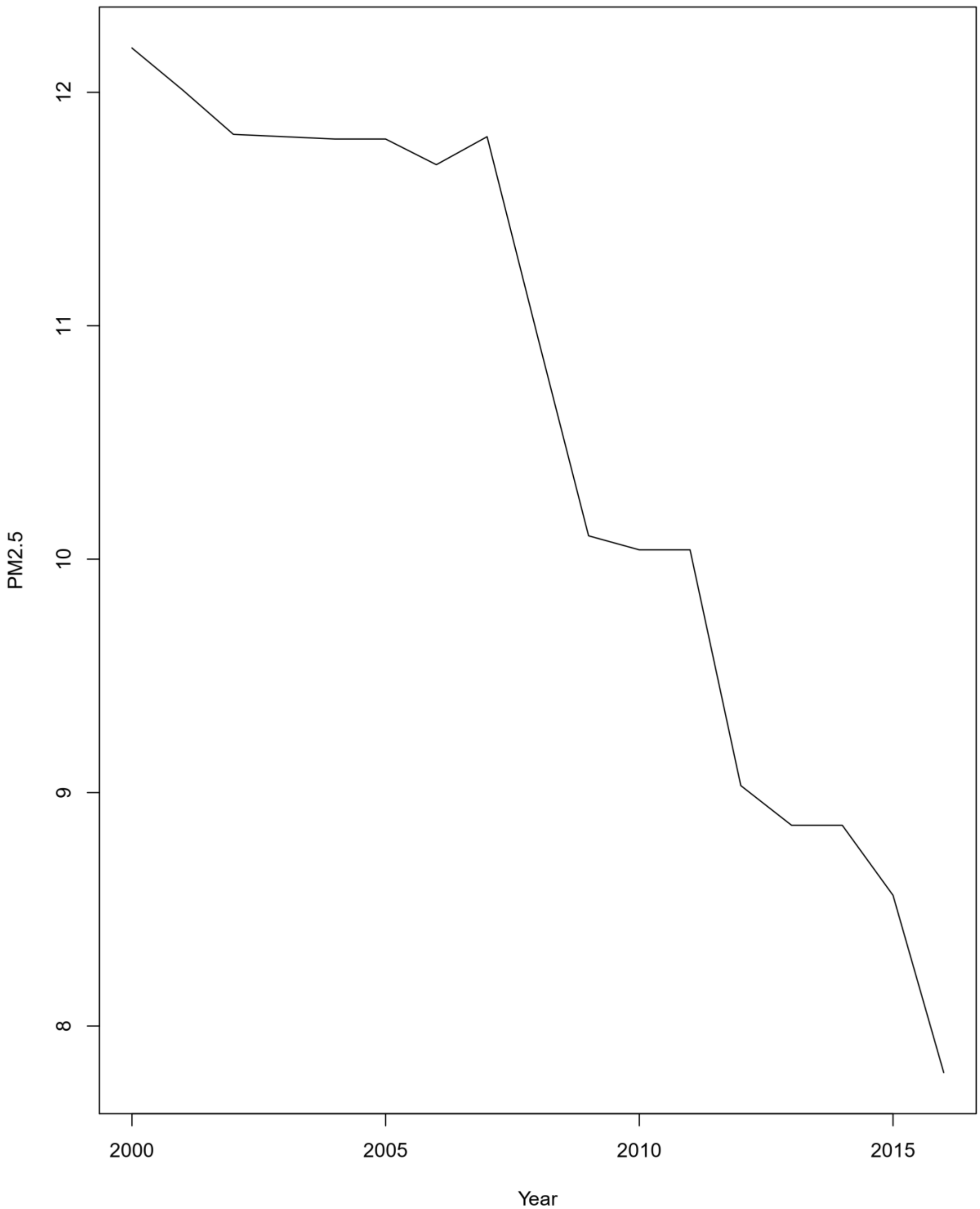
eFigure 1. Directed Acyclic Graph for the relationship of air pollution, confounders (including latent confounders) and mortality. E is exposure, D population density, R is race/ethnicity, I income, W wealth, ED education, M access to medical care, B is body mass index, A age, S sex, IR individual race, ZB neighborhood % Black, ZH, neighborhood % Hispanic, ZI median household income, P % age ≥ 65 living in poverty, MED individual on Medicaid, V median household value, H % home ownership, SM smoking, SR mean smoking rate, LC lung cancer rate, LDL percent with annual LDL screen, EYE percent with annual eye exam, MAM percent with annual mammogram, H1C percent with hemoglobin A1c screen, ANN percent with annual checkup, DIS distance to nearest hospital, T year, Y death. The variables I, R, W, and M are latent constructs, with observed surrogates, such as MED, P, ED, and ZI for income (I). All variables were controlled in the model except for the latent intermediate variables where the antecedents were controlled.



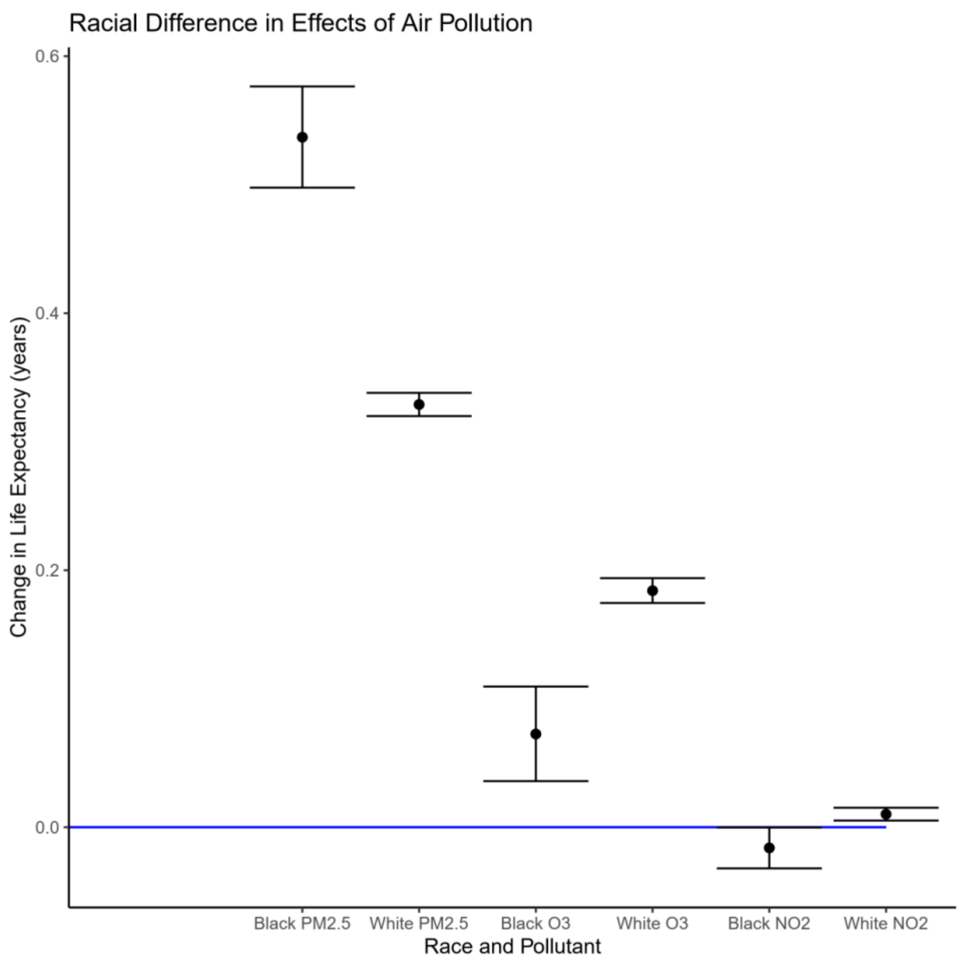
eFigure 2

This shows the estimated trend in $PM_{2.5}$ exposure from the propensity score model at age 65, holding all other covariates at their mean. The model captures nonlinearity in the time trend for $PM_{2.5}$.

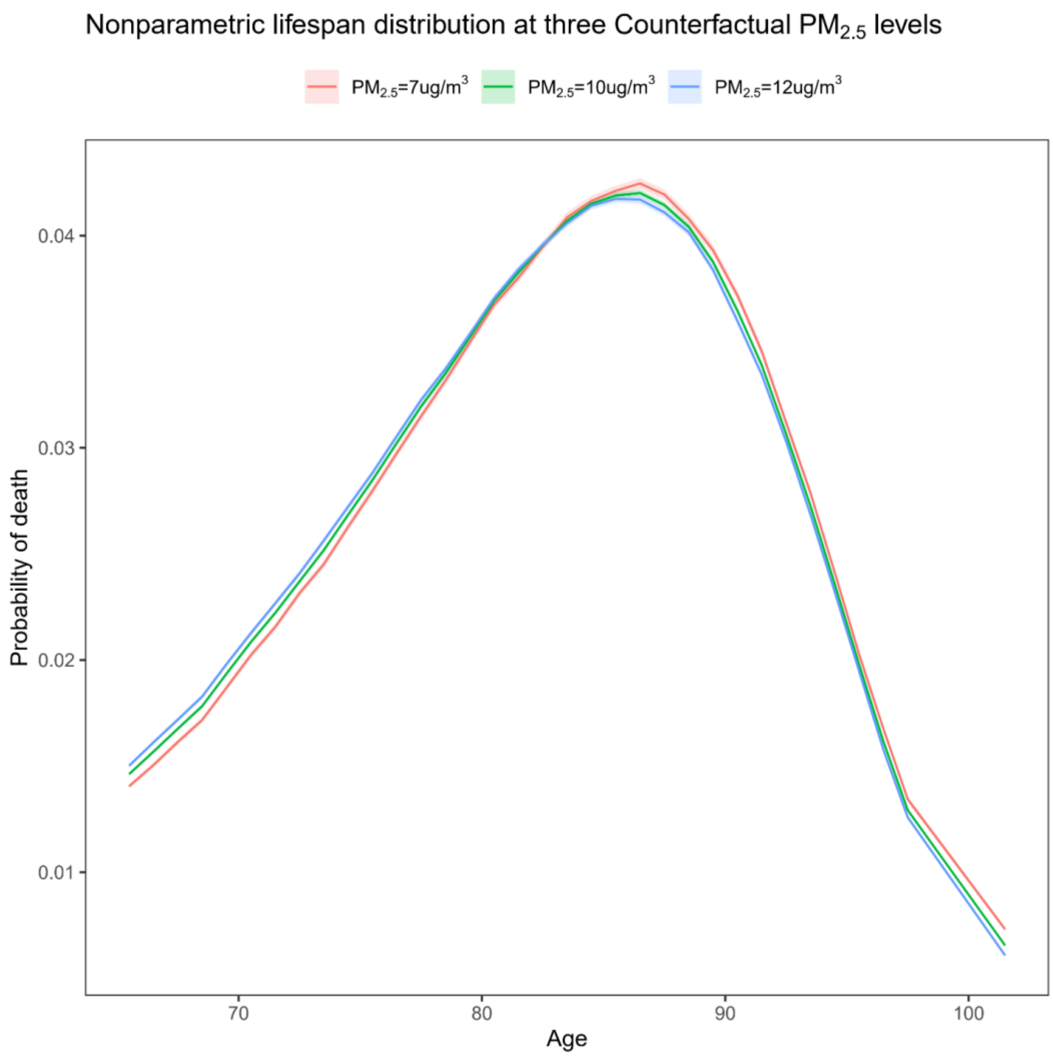


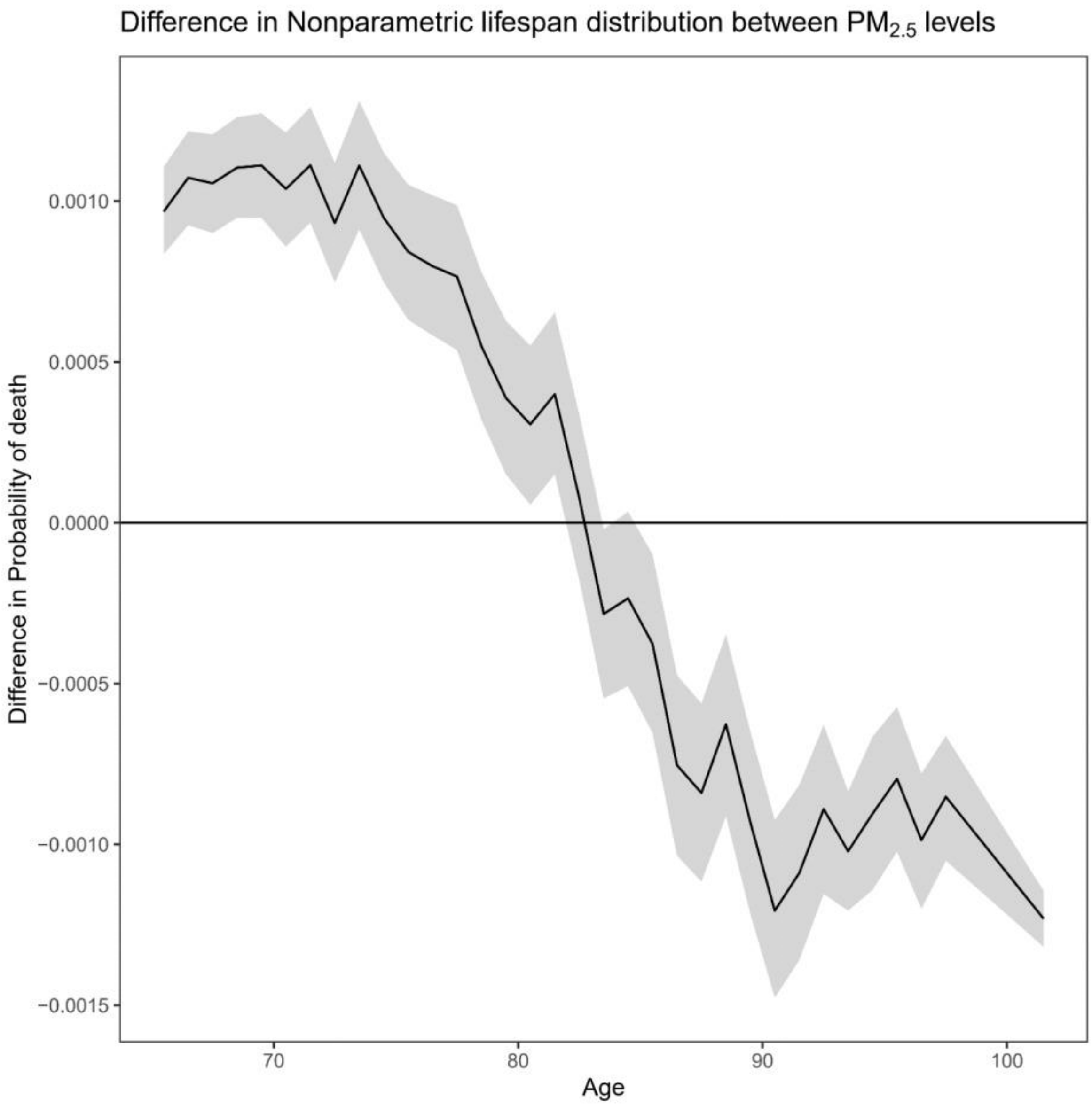
PM2.5
12
11
10
9
8
2000
2005
2010
2015
Year

eFigure 3 shows the estimated change in life expectancy (and 95% CI) between the high and low concentrations of $PM_{2.5}$, O_3, and NO_2 for blacks and whites separately. Blacks had larger effects than Whites for $PM_{2.5}$, but smaller effects of O_3.


Racial Difference in Effects of Air Pollution
Change in Life Expectancy (years)
0.6
0.4
0.2
0.0
Black PM2.5
White PM2.5
Black O3
White O3
Black NO2
White NO2
Race and Pollutant

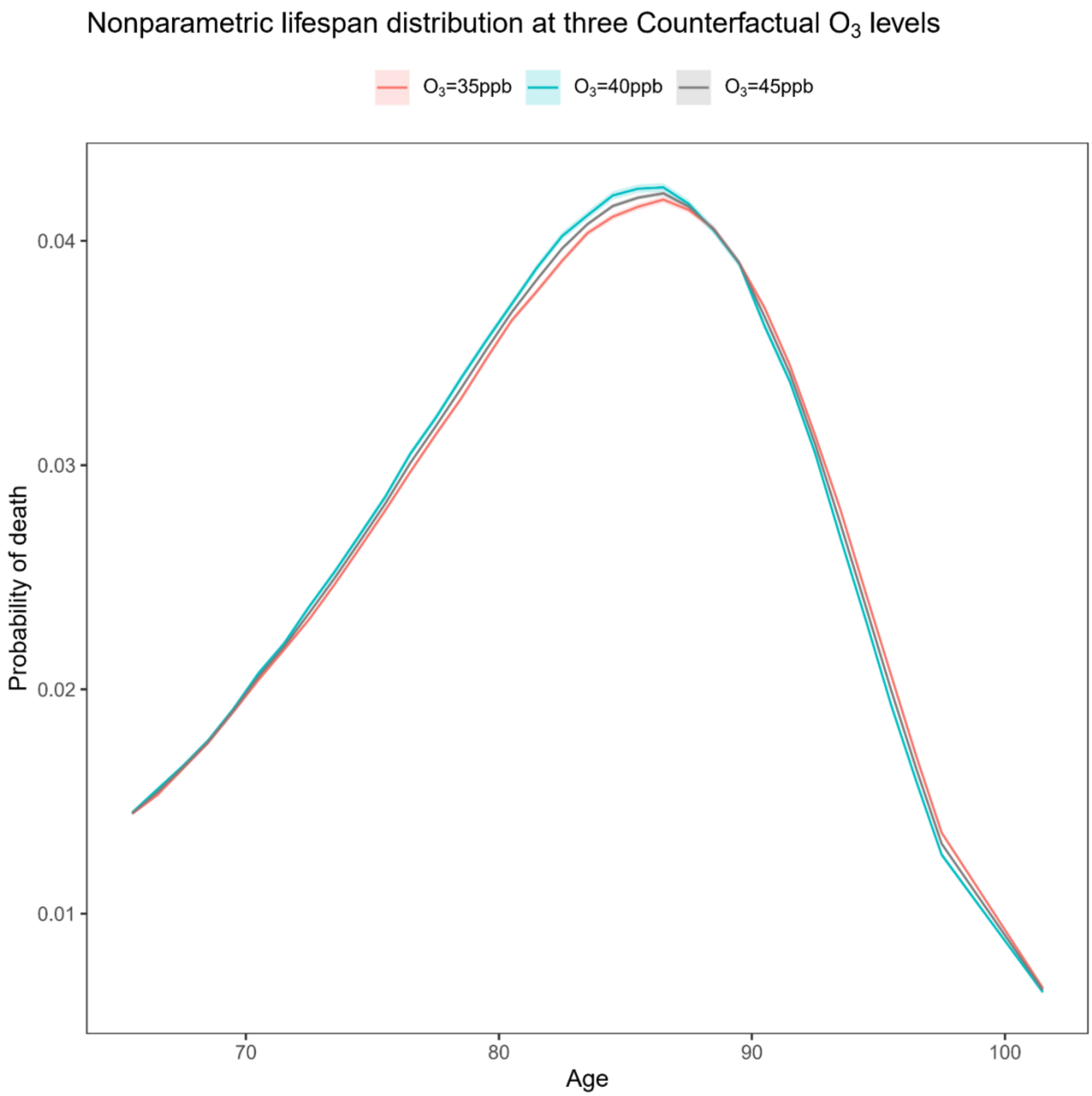
eFigure 4a and b shows a) the estimated distribution of age at death at $PM_{2.5}$ concentrations of 7,10, and 12 μg/m^3, controlling for the other pollutants and covariates using inverse probability weighting for each year of age. The shaded areas represent the 95% confidence intervals of the estimates; b) shows the estimated difference (and 95% confidence interval) in the marginal probability of dying at each age between $PM_{2.5}$ exposures of 12 μg/m^3 versus. 7 μg/m^3. The difference in probability of death is highest between ages 65 to 75, with consequent fewer people surviving to die in their 90's.

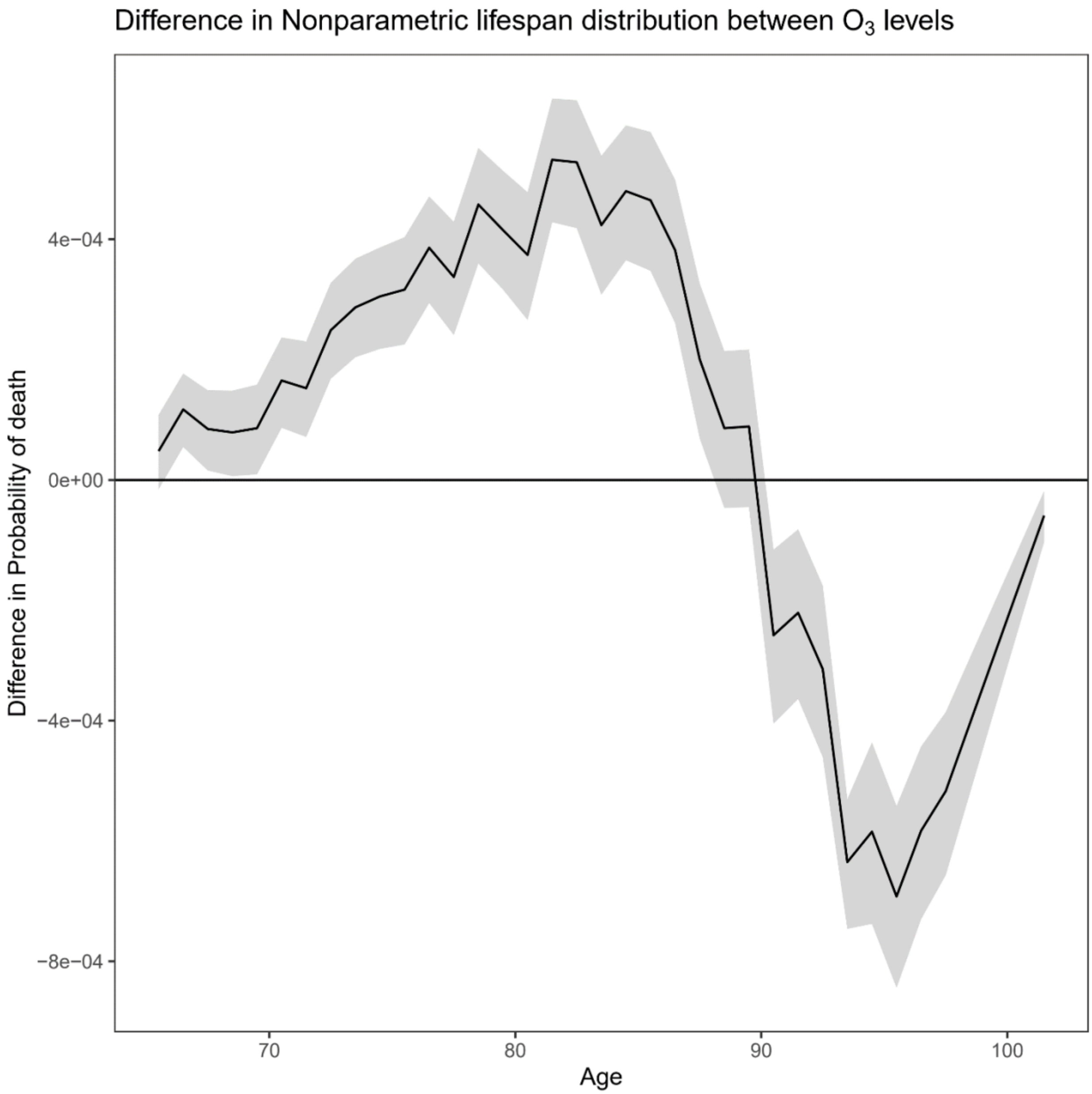




Difference in Nonparametric lifespan distribution between PM2.5 levels
Difference in Probability of death
0.0010
0.0005
0.0000
−0.0005
−0.0010
−0.0015
70
80
90
100
Age

eFigure 5a and b shows a)the estimated distribution of age at death at O_3 concentrations of 35, 40, and 45ppb, controlling for the other pollutants and covariates using inverse probability weighting for each year of age. The shaded areas represent the 95% confidence intervals of the estimates; b) the estimated difference (and 95% confidence interval) in the marginal probability of dying at each age between O_3 concentrations of 55ppb versus. 45ppb. The difference in probability of death is highest between ages 75 and 85, with consequently fewer people surviving to die in their 90's.





Difference in Nonparametric lifespan distribution between O3 levels
Difference in Probability of death
4e−04
0e+00
−4e−04
−8e−04
70
80
90
100
Age

eFigure 6 shows the estimated distribution of life expectancy at NO_2 concentrations of 10, 15, and 20ppb, controlling for the other pollutants and covariates using inverse probability weighting for each year of age. The shaded areas represent the 95% confidence intervals of the estimates.