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## **Supplemental Material**

### **A Quantile-Based g-Computation Approach to Addressing the Effects of Exposure Mixtures**

Alexander P. Keil, Jessie P. Buckley, Katie M. O'Brien, Kelly K. Ferguson, Shanshan Zhao, and Alexandra J. White

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**Figure S2.** Large sample simulation results demonstrating the default graphical output of the “gWQS” R package showing the point estimates of the exposures weights in WQS regression. Under a linear model when effects of exposures are all in the same direction, the weights correspond to the proportion of the total mixture effect that is due to each exposure.

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**Figure S6.** Scenario 5: Impact of co-pollutant confounding on the bias of the overall exposure effect estimate (N=100, d=9) for quantile g-computation (q-gcomp) and WQS regression (WQS) at exposure correlations ( $\rho_{x_1x_2}$  of 0.0, 0.4, and 0.75) and varying total effect sizes ( $\psi = \beta_1 + \beta_2 \in 0.2, 0.15, 0.05$ ). Boxes represent the median (center line) and interquartile range (outer lines of box) and outliers (points outside of the 1.5\*IQR length whiskers) across 1,000 simulations.

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**Table S1.** Validity of WQS regression and quantile g-computation under the null (no exposures affect the outcome, or exposures counteract) and non-null estimates when directional homogeneity holds, 1,000 simulated samples of N=100.

**Table S2.** Validity of WQS regression and quantile g-computation under non-null estimates when directional homogeneity holds, individual exposure effects are non-additive, and the overall exposure effect includes terms for linear ( $\psi_1$ ) and squared ( $\psi_2$ ) exposure (e.g. quadratic polynomial), 1,000 simulated samples of N=100.

**Table S3.** Validity of WQS regression without sample splitting and quantile g-computation under the null (no exposures affect the outcome, 1,000 simulated samples of N=500).

**Additional File-** Supplemental Code and Data Files