



APPENDIX AVAILABLE ON REQUEST

Research Report 137

The Influence of Improved Air Quality on Mortality Risks in Erfurt, Germany

Annette Peters et al.

Appendix E. Additional Sensitivity Analyses for Time-Varying Models

Note: Appendices Available on the Web appear in a different order than in the original Investigators' Report. HEI has not changed these documents. Appendices were relettered as follows:

Appendix B was originally Appendix A
Appendix C was originally Appendix B
Appendix D was originally Appendix C
Appendix E was originally Appendix D

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Although this document was produced with partial funding by the United States Environmental Protection Agency under Assistance Award CR-83234701 to the Health Effects Institute, it has not been subjected to the Agency's peer and administrative review and therefore may not necessarily reflect the views of the Agency, and no official endorsement by it should be inferred. The contents of this document also have not been reviewed by private party institutions, including those that support the Health Effects Institute; therefore, it may not reflect the views or policies of these parties, and no endorsement by them should be inferred.

This document was reviewed by the HEI Health Review Committee but did not undergo the HEI scientific editing and production process.

Appendix D. Additional sensitivity analysis for time-varying models

Sensitivity of NO₂ results Since the NO₂ data from April 1, 1994 to February 1, 1995 were deleted in the regular analysis, we performed a sensitivity analysis, where all the values during this period were included.

The right-hand side of Figure D. 1 shows the resulting time-varying estimate. There was no real difference visible in the effect of the specific NO₂ data (Figure D. 1, a)). The increase in the time-varying effect during the period April 1, 1994 to February 1, 1995 is an artifact due to smaller concentrations measured in this period.

Sensitivity regarding the imputed values We re-estimated the models for PM₁₀, lag 0 MC_{0.01-2.5}, lag 0 and ultrafine particles, lag 4 without imputed values. Results of this analysis are shown in Figure D. 2 for PM₁₀ and Figure D. 3 for MC_{0.01-2.5}. Note that there was no PM₁₀ measured between 1992 and 1995. From 1996 onwards, the time-varying estimates without imputed values were in good agreement compared to those of the analysis with imputed values. For MC_{0.01-2.5}, we saw only slight differences for the end of the study period; however, this should be evaluated in view of the very wide 95% credible interval. The same holds true for ultrafine particles (NC_{0.01-0.1}) (results not shown).

Figure D. 1: Time-varying association of NO_2 , lag 3 without (top) and with period 1994 (bottom).

Figure D. 2: Time-varying association of PM_{10} , lag 5 without imputed values (top) and with imputed values (bottom).

Figure D. 3: Time-varying association of $\text{MC}_{0.01-2.5}$ without imputed values (top) and with imputed values (bottom).

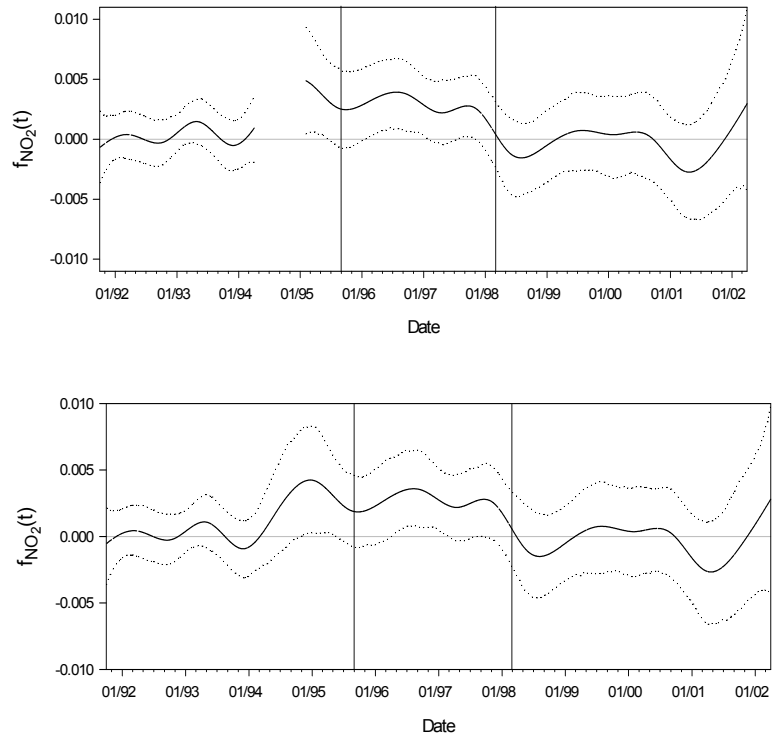


Figure D. 1: Time-varying association of NO_2 , lag 3 without (top) and with period 1994 (bottom).

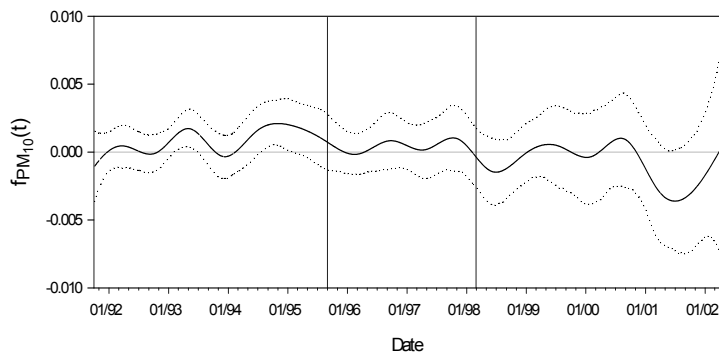
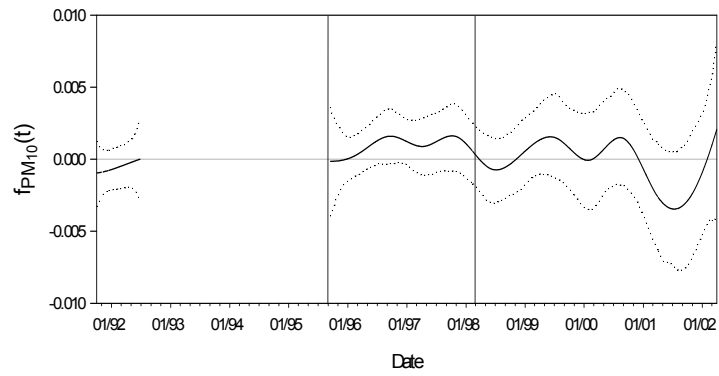


Figure D. 2: Time-varying association of PM_{10} , lag 5 without imputed values (top) and with imputed values (bottom).

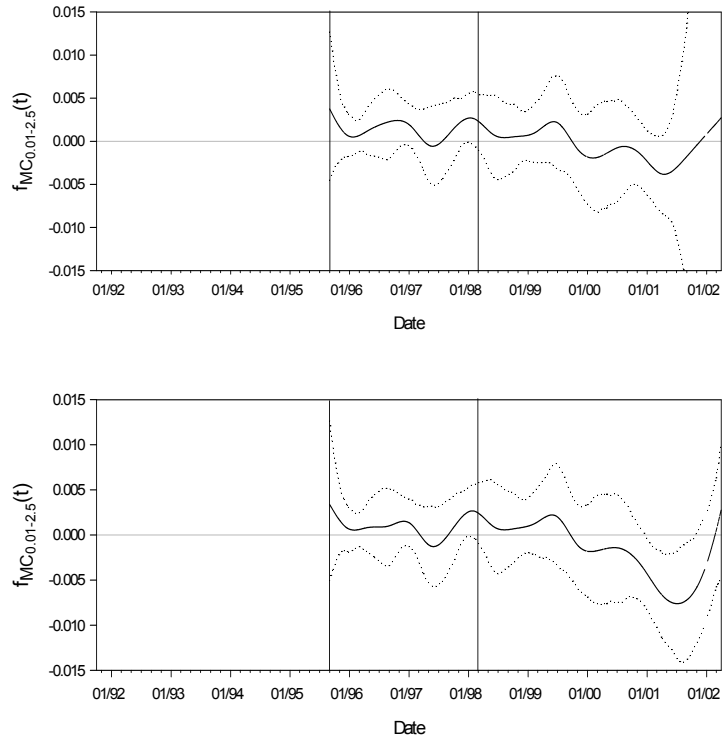


Figure D. 3: Time-varying association of $MC_{0.01-2.5}$ without imputed values (top) and with imputed values (bottom).