THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

MASTER'S THESIS PRESENTATION

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Study of geographical and demographic, and temporal factors affecting PM2.5 concentration level across the US

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ABSTRACT

This thesis aims to address the major public health problem of air pollution, with a focus on fine particulate matter (PM2.5) in the United States. While PM2.5 levels have decreased nationally due to stricter emission regulations and cleaner energy sources, disparities in exposure still exist across different population groups based on various factors. Based on the work of Jbaily et al. (2022), this thesis aims to further investigate these disparities by incorporating additional geographic information and analyzing the dataset quantitatively. Through models and residual analysis, the thesis will explore the effect of geographical, demographic, and temporal factors on PM2.5 exposure levels. Ultimately, the thesis seeks to provide a comprehensive overview of the spatial patterns and social determinants of PM2.5 exposure level in the US and identify potential strategies for reducing exposure inequalities and improving air quality for all.