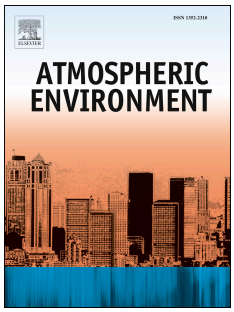
Accepted Manuscript



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PII: S1352-2310(18)30249-8

DOI: 10.1016/j.atmosenv.2018.04.018

Reference: AEA 15951

To appear in: *Atmospheric Environment*

Received Date: 2 December 2017

Revised Date: 13 March 2018

Accepted Date: 10 April 2018

Please cite this article as: Du, G., Shin, K.J., Managi, S., Variability in impact of air pollution on subjective well-being, *Atmospheric Environment* (2018), doi: 10.1016/j.atmosenv.2018.04.018.

Variability in Impact of Air Pollution on Subjective Well-being

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Abstract

This paper examines the impact of variability in impact of air pollution on life satisfaction (LS). Previous studies have shown robust negative impact of air pollution on subjective well-being (SWB). However, empirical studies that consider variability in air pollution effects through comparative city study are limited. This study provides comparative evaluation of two major Chinese cities: Beijing and Shanghai. We apply a geo-statistical spatial interpolation technique on pollution data from monitoring sites to estimate the Sulfur Dioxide (SO_2), Nitrogen Dioxide (NO_2), coarse particles with a diameter between 2.5 and 10 μm (PM_{10}) and fine particles with a diameter of 2.5 μm or less ($PM_{2.5}$) pollution exposure of respondents of a survey conducted in 2016. The results show that all pollutants have robust negative impacts on LS for Beijing residents, whereas only SO_2 and NO_2 have significant negative impacts on LS for Shanghai residents; Per unit impact of SO_2 is greater in Shanghai, and that of NO_2 is greater in Beijing. Beijing and Shanghai residents have almost same monetary valuation for SO_2 reduction but Beijing residents place approximately 1.5 times valuation on NO_2 reduction compared to Shanghai residents. Moreover, the LS of Beijing residents is sensitive to temporal changes in the pollution level, whereas Shanghai residents are unaffected by such changes.

Keywords: Subjective well-being; Life satisfaction; Air pollution; Geo-statistical spatial interpolation; China

JEL: Q51, Q52, Q53

1. Introduction

Understanding people's subjective perception of environmental problems is crucial in the field of environmental economics and environmental impact assessment. Subjective evaluation allows us to incorporate people's environmental concerns in addition to the stated-preference (e.g., Wang and Mullahy, 2006) or revealed-preference approaches (e.g., Kim et al., 2003) that have traditionally been used by economists to incorporate subjectivity