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# Does air pollution affect public health and health inequality?

## Empirical evidence from China

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**Abstract:** Air pollution and its effects on public health have received considerable attention in China. This paper extends discussion of the relationship between pollution and health by focusing on the effects of certain socioeconomic factors from an equality perspective. Hierarchical linear regression models are used to analyze the effects of environmental pollution on the health of residents and explore the inherent mechanisms through which environmental and economic factors contribute to increases in health inequality. The main results indicate that pollution poses significant risks to health. Individual income and life satisfaction are found to be significantly positively related to health and this relationship is intensified by the effects of environmental pollution. The results show that health inequality is prevalent throughout China and is more severe in rural areas. The damage to health caused by pollution further increases the levels of health inequality to varying degrees in groups with different income levels. Pollution also increases the impact of income inequality on health inequality. Overall, the results to some extent validate the concept of an “environment-health-poverty trap.”

**Key words:** Health; Health inequality; Environmental pollution; Income inequality; Environment-health-poverty trap

### 1. Introduction

As the world’s leading primary energy consumer, in 2016, China accounted for 62% of the world’s coal consumption (BP Statistical Review of World Energy, 2017). The high level of energy consumption has led to a series of negative environmental effects (Dangerman, 2013), including air pollution, especially in the Central and

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