

Air pollution and infant mortality: Evidence from Automobile NO_x/PM Control Law in Japan

Shuhei Nishitateno

Abstract

Automobile NO_x/PM Control Law led to significant time series variation in suspended particulate matter (SPM) concentrations between designated and non-designated municipalities in Japan. This paper exploits this exogenous variation to estimate the chronic effects of air pollution on infant mortality with month-municipality-level panel for January 1981–December 2015. Evidence suggests that around 400 infants, mostly newborn babies, would lose their lives in the absence of the intervention. We also find that the policy reduced perinatal mortality, but not stillbirth.

1. Introduction

2. Background

2.1. Relationship between air pollution and infant mortality

2.2. Prior research

3. Estimation strategy

3.1. Specification

$$Mortality_{c,t} = \alpha + \alpha_1 Pollution_{c,t} + \delta Weather_{c,t} + \gamma_c + \delta_t + \varepsilon_{c,t} \quad (1)$$

where c and t stand for city and month-of-the-year.

Mortality includes (a) infant mortality (1 year, 4 weeks, and 1 week after birth), (b) stillbirth (artificial and natural), (c)

3.2.