Chelo Nuyda and Hisahiro Naito
Graduate School of Humanities and Social Sciences
University of Tsukuba

The Effect of PM2.5 Exposure Before Conception on Infant Mortality:
Evidence in the Philippines Using Upper Air Dynamics
as Instrumental Variables

Abstract

In this study, we examine the effects of PM2.5 exposure before conception on infant mortality, using upper air dynamics as instrumental variables. Using satellite data on air pollution and individual vital statistics records in the Philippines from 2006 to 2018, we construct monthly windows to determine exposure and infant mortality rates based on birth-century-month code and location. We estimate and compare the effects through Ordinary Least Squares (OLS) and Two-stage least squares (2SLS) regressions. Our findings show that increased exposure to PM2.5 is associated with a large and statistically significant increase in infant mortality. We further find that extending window exposures during pregnancy does not attenuate the large effect of the air pollution exposure before conception on infant mortality.