COLLOQUIUM BY ZHANG JUNJIE

AIR POLLUTION AND DEFENSIVE EXPENDITURES: EVIDENCE FROM PARTICULATE-FILTERING FACEMASKS

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REFRESHMENTS PROVIDED

Speaker: Dr. Zhang Junjie, Associate Professor, School of Global Policy and Strategy at the University of California, San Diego.

ABSTRACT:

Rational individuals take preventive measures to avoid costly air pollution exposure. This paper provides new empirical evidence of pollution avoidance that Chinese urban residents purchase particulate-filtering facemasks against ambient air pollution. The analysis is conducted with detailed and comprehensive data available on daily facemask purchases and air quality that became available only very recently. We find that this transitory air pollution avoidance behavior exhibits dynamics and nonlinearities, with significant increases of facemask purchases during extreme pollution episodes. The daily model shows that a 100-point increase in Air Quality Index (AQI) increases the consumption of all masks by 54.5 percent and anti-PM2.5 masks by 70.6 percent. The estimates from the aggregated model with flexible pollution levels are used to simulate the benefit of air quality improvement. If 10 percent of heavy pollution days were eliminated, the total savings on facemasks alone would be approximately 187 million USD in China. This result suggests that reducing the occurrence of "airpocalypse" events represents a significant opportunity to improve social welfare. Nevertheless, our estimates are likely only the lower bound of the benefit of clean air because facemasks can only partially reduce the negative health effects of air pollution and the costs of other avoidance behaviors are not included.

BIO:

Junjie Zhang is an Associate Professor in the School of Global Policy and Strategy at the University of California, San Diego. He is also a senior adviser at Asia Society. His research endeavors to seek empirical evidence for the better design of policies on air pollution, climate change, and natural resources. He is particularly interested in using an interdisciplinary approach to attack the complex sustainability problem. Specifically, he develops economic models to answer the real-world environmental policy questions with a focus on incorporating micro behavior into environmental management. He also uses emerging data and information-- including big data and satellite imagery--to study the empirical issues in environmental economics. Junjie Zhang completed his PhD in environmental and resource economics at Duke University in 2008. He also holds a BA in environmental economics and management from Renmin University of China, a BS and a MS in environmental engineering from Tsinghua University.