

SEMINAR

"Trans-Boundary Air Pollution Spillovers: Physical Transport and Economic Costs by Distance"

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Time: 14:30-16:00

Venue: WYL314

ABSTRACT:

The economic costs of trans-boundary pollution spillovers versus local effects is necessary to evaluate centralized versus decentralized environmental policies. Directly estimating these for air pollution is difficult because spillovers are high-frequency and vary with distance while economic outcomes are usually measured with low-frequency and local pollution is endogenous. We develop an approach to quantify local versus spillover effects as a flexible function of distance utilizing commonly-available pollution and weather data. To correct for the endogeneity of pollution, it uses a mixed two-stage least squares method that accommodates high-frequency (daily) pollution data and low-frequency (annual) outcome data. This avoids using annual pollution data which generally yields inefficient estimates. We apply the approach to estimate spillovers of particulate matter smaller than 10 micrograms (PM10) on manufacturing labor productivity in China. A one $\mu\text{g}/\text{m}^3$ annual increase in PM10 locally reduces the average firm's annual output by CNY 45,809 (0.30%) while the same increase in a city 50 kilometers away decreases it by CNY 16,248 (0.11%). The spillovers decline rapidly to CNY 2,847 (0.02%) at 600 kilometers and then slowly to zero at about 1,000 kilometers. The results suggest the need for supra-provincial environmental policies or Coasian prices quantified under the approach.

BIOGRAPHY:

Dr. Brian Viard moved to Beijing in 2007 to join the faculty of Cheung Kong Graduate School of Business (CKGSB). Prior to that, he was a professor at Stanford Graduate School of Business. Professor Viard's research focuses on industrial organization economics, environmental economics, and economics of strategy. His recent work focuses primarily on environmental economics including the economic effects of China's efforts to reduce automobile pollution, the effect of air pollution on manufacturing productivity, and how spillovers between Chinese cities affects efforts to reduce air pollution.

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