

**March 12, 2004 at 12.00 Noon
Zimmer Lounge, Maxcy Hall**

Spatial Structure in the Social Sciences Colloquium Series

**Environmental Regulation, Air Quality and
Respiratory Health in Delhi: A Preliminary Analysis**

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Abstract: In this talk we will discuss our work in progress on the air quality, residential patterns, and respiratory health responses in Delhi. Taking advantage of newly implemented spatially focused regulations, we first will develop a health production model that attempts to isolate the consequences of adverse air quality on respiratory health after accounting for possibly endogenous residential choice. The approach requires a great deal of micro level data on air quality as well as detailed information on residential and occupation locations, modes of transit, and sources of exposure to adverse quality. Thus far we have recorded suspended particulate matter (PM) in a range of 1 to 10 micron at 113 sites in Delhi from July to Nov, 2003 that we are correlating with the satellite retrieved aerosol optical thickness (AOT), which will provide us basis to generate indirect estimates of air quality surfaces for the past several year at fine spatial resolution, and that are very much essential not only to evaluate the state of air quality in pre and post regulation periods but also for long term outdoor exposure assessment.

In the next part, we will demonstrate how GIS/RS applications can be exploited for selecting a location based household sample, especially when sampling frame is not available. Using this methodology we have identified 1700 household locations in Delhi that are currently being surveyed. Finally, we will present some sample results showing the linkages between ambient exposure to air pollution and respiratory health outcome in different age-sex cohorts living in different air pollution zones.