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TITLE: SPATIALLY EXPLICIT ANALYSIS OF ECONOMIC STRUCTURE AND AIR POLLUTION

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ABSTRACT:

Air pollution from industrial sectors may not only prove a problem in the immediate vicinity of the sources but can travel long distances (AEA, 2008). The environmental extensions of input-output models have been mainly used for measuring the total and sectoral emissions or discharges of various pollutants. However, the impacts of pollutant emissions or discharges on a region are not only dependent on the total amount of pollution but also depend on the interaction of the pollutants with their environment, i.e. diffusion, transmission and interaction with other pollutants. This paper explains the development of a spatial economic model of air pollution for major pollution industries through coupling an input-output model, pollution dispersion model and geographical data. The developed model will be used to 1) assess the contributions of air emissions from different industrial sectors, particularly from power generation sector; 2) analyse how economic changes drive the changes of air emissions from different sectors; 3) provide a spatial view of the affected areas from air pollution of the major industrial sectors. The significant contributions of the developed model are that it is one of the very first spatially explicit air pollution input-output models and it represents a major innovation in analytical approach by linking Geographic Information System and input-output analysis.