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NEWS RELEASE

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Study Identifies Industries Responsible for Air Pollution Damage

NASHVILLE, TENNESSEE— What is the impact of truck transportation, crop production, water transportation, and petroleum-fired electric power generation on air pollution in the United States? A recent study published in the August issue of the *American Economic Review* (AER), entitled “Environmental Accounting for Pollution in the United States Economy,” links air pollution damage to specific sources.

In the study, authors Nicholas Z. Muller, Robert Mendelsohn, and William Nordhaus, present “a framework to integrate external damages into national economic accounts.” They state that “the gross external damages (GED) caused by each industry are included in the national accounts as both a cost, and an (unwanted) output.” The authors define GED “as equal to the marginal damages of emissions (the price) times the total quantity of emissions.”

The study found that “the ratio of [GED] to value added (VA) is greater than one for seven industries (stone quarrying, solid waste incineration, sewage treatment plants, oil- and coal-fired power plants, marinas, and petroleum-coal product manufacturing).” According to the authors, “this indicates that the air pollution damages from these industries are greater than their net contribution to output.”

The authors state that “the ratios of damages to VA across these industries range from 6.7 for solid waste combustion to 1.4 for petroleum and coal products. The fact that GED exceeds VA implies that if the national accounts included the external costs due to air pollution emissions, the augmented measure of VA for these industries would actually be negative.”

The authors extracted information from the Air Pollution Emission Experiments and Policy (APEEP) model, an integrated assessment economic model of air pollution for the United States, to calculate the results. “The APEEP model connects emissions of six major pollutants (sulfur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOCs), ammonia (NH₃), fine particulate matter (PM_{2.5}), and coarse particulate matter (PM₁₀ –PM_{2.5})) to the physical and economic consequences of these discharges on society.”

Although air pollution was the main focus of the study, the authors claim that a similar analysis of water pollution, solid waste, and hazardous waste pollution “would be feasible.” The authors conclude that national accounts that include air pollution can be developed, and “given the size and distribution of damages found in this study, the development by national statistical agencies of a full set of environmental accounts embedded in the national economic accounts is clearly warranted.”

The full study is available at <http://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.101.5.1649>. An executive summary is also available http://www.aeaweb.org/aer/data/aug2011/executive_summary.pdf.

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