

The Use (and Abuse) of Meta-Analysis in Environmental and Natural Resource Economics: An Assessment

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Abstract

Motivated by the 2006 report of a Work Group appointed by the Environmental Protection Agency (EPA), this paper examines the present state of meta-analysis in environmental economics and offers recommendations for its future use. To this end we summarize and assess 130 meta-analyses from 115 published and unpublished studies, covering seventeen topical categories in environmental and resource economics. First, we provide several generic meta-analysis models as reference points and discuss major estimation issues. Five econometric issues are identified as part of a complete analysis: (1) sample selection criteria; (2) basic data summary; (3) primary data heterogeneity; (4) heteroskedasticity; and (5) non-independence of multiple observations from primary studies. Second, a tabular summary is presented for the 130 meta-analyses with respect to estimation methods. Third, a narrative summary is presented for 19 meta-analyses, including the three value-of-statistical-life studies examined by the EPA Work Group and one analysis from each of sixteen other categories. Fourth, we offer a set of “best practice” guidelines for future meta-analyses in this and other areas of economics. Last, the paper comments on the use of meta-analytic methods for benefit transfers of environmental values.

Keywords: Meta-analysis, Environmental Valuation, Benefit Transfer, Econometric Modeling.

JEL Classification: C5, Q2, Q51

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The full version of the paper can be found at

http://econ.la.psu.edu/papers/The%20Use%20of%20Meta-Analysis_re081208.pdf