IN PRINT

Determining the Economic Value of Water: Concepts and Methods

by Robert A. Young, RFF Press, $80.00 (cloth), $39.00 (pbk.)

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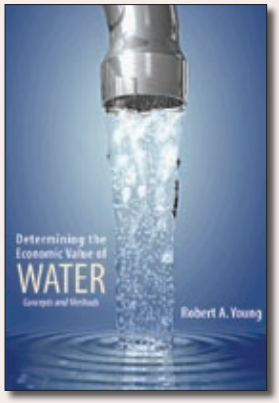
Resources for the Future (RFF) is the leader in publishing state-of-the-art books and position papers on economic topics related to natural resource policy. *Determining the Value of Water* is a recent addition to the RFF series.

The book begins with an explanation of the hydrologic and physical attributes of water, social, legal, and political perspectives, and implications for economic analysis. This is followed by a very accessible presentation of economic concepts such as welfare theory, cost-benefit analysis, the Pareto principle, discounting, and total economic value. A taxonomy of 17 economic methods commonly used in the analysis of economic values of water is also provided.

A separate chapter succinctly presents the issues in valuing water from a producer's perspective, i.e., the use of water as an input to production. Topics include economic rents, residual analysis, production functions, input-output analysis, computable general equilibrium modeling, and a section on the inappropriate use of economic models. The author pays special attention to the welfare effects of production that are absent in most water resource studies.

For most goods that are traded in markets, prices send signals that indicate the product's scarcity. For those that have a strong public goods component such as water, such signals are often lacking. This book provides an overview of non-market valuation techniques that can estimate these public goods-type values. The term non-market value has become synonymous with values attributable to environmental preservation, but the tools are just as relevant for effects that are not measurable in markets and are outside the environmental realm, such as cultural values or the non-market value of off-stream diversions.



A separate chapter presents specific techniques to value water as an input to irrigated agriculture. Topics include estimation of crop production functions using field experiments and simulation models, inductive tools such as observation of water rights prices and hedonic property models, econometric estimation of the value marginal product (VMP) of irrigation water, and techniques to model salinity damage.

The book also covers topics relevant for valuing water use by industry. The author notes that while water is typically a very small input to most production processes, it is very difficult to value. Discussion centers around VMP, derived demand and econometric approaches and applications to hydropower, water quality, and navigation.

The value of water in residential uses is also addressed, with issues of demand estimation and the use of meta-analysis to determine price elasticity of demand outlined in some detail. Other methods such as contingent valuation, hedonic price, and engineering approaches to determine value are also presented.

The final chapter covers valuation of public goods. Examples include valuing changes in lake levels and instream flow using contingent valuation, the travel cost method, and choice models, and the value of water quality using hedonic pricing. An excellent summary on estimating the benefits of reductions in flood risk is a highlight of this section.

This book is suitable not only for professional economists but also for engineers, planners, consultants, policy makers, and environmental interests with exposure to upper-level undergraduate economics. It will serve as an invaluable reference for water planners and consultants and as a concise summary of water economics for students of water resources.

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