Book Review


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Robert A. Young was the sole author of the first edition of this book. Inviting John B. Loomis to contribute to the second edition has proven to be a great decision. The co-authorship resulted in substantial improvements and a number of important updates. This book is a memorial to Robert A. Young and his vast contribution to water economics. It serves as a splendid means of conveying his ample knowledge to anyone who wishes to learn how to determine the economic value of water and, most importantly, how to do it well.

A book authored by two prominent scholars in the field of environmental and resource economics, specialized in water economics and non-market valuation, *a priori* creates high expectations. However, even readers with the highest standards will not be disappointed. This excellent book should be an obligatory literature for anyone involved in water management, including economists and non-economists, scholars and practitioners alike. It provides a comprehensive overview of the underlying theoretical framework and empirical methods for economic valuation, complemented by a rich variety of examples in virtually any water use domain. An extraordinary feature of this book is that even a person without prior knowledge of water economics can easily understand and follow it, which makes it accessible to a truly broad readership.

Water is a crucial element for supporting life on Earth and an important factor for many economic activities. The water supplies are however limited, whereas the demand for water is continuously rising. As a result, the competition for water use is rapidly increasing. Factors such as population growth, unsustainable water uses, water pollution, and climate change are expected to exacerbate this problem in the future. More efficient allocation of water resources will hence become a necessity. Understanding how much water is worth for alternative uses is essential for making decisions about improvements in its allocation efficiency. The importance of this book is therefore undisputable. Its publication is very timely and is likely to remain relevant for decades to come.
The book follows a logical structure and is divided into three parts. The first part explains concepts and theory of economic valuation. In particular non-economists can benefit greatly from the introductory part, which motivates the need for economic valuation and defines some of the basic economic concepts. The authors have done a magnificent job in positioning economic valuation within the discipline of economics, thereby briefly describing the alternative streams of economic thoughts and pointing out the main differences between them. Furthermore, they define the role of economic valuation in water management and acknowledge the importance of considering other decision-making criteria apart from the economic ones, underlining their advantages as well as limitations. In a similar spirit, they present alternative concepts of value and value plurality. Another valuable element is the list of issues to consider when engaging into economic valuation (e.g. identifying the relevant population of beneficiaries, considering private vs. social perspective, long-run vs. short-run values). Although this may sound trivial, it is in fact an extremely useful check-list because failing to define any of these factors properly impairs the entire valuation effort.

Methods for valuing water are the focus of the second part of the book. A review of economic valuation techniques is as comprehensive as it gets and distinguishes appropriately between methods for valuing the use of water from producers’ and consumers’ perspectives. Apart from providing pragmatic guidelines for implementing various methods for valuing water, the authors also indicate strengths and weaknesses of different methods. Moreover, they address the appropriateness of using certain methods in numerous situations, depending on the purpose of the economic valuation. An important asset of the book is the categorization of ecosystem goods and services provided by water resources. The contribution of Loomis is apparent from improvements and extensions made in this section, particularly those associated with revealed and stated preference methods. An example is the insight in the methodological issues that one needs to consider
when applying these methods (e.g. hypothetical bias in stated preference methods). A concise but thorough overview of advances made in dealing with such issues (e.g. available strategies for minimizing hypothetical bias) and the ongoing discussion in the literature is one of the highlights of this section.

The third part is the one that makes this book unique, distinguishing it sharply from other textbooks on economic valuation. It deals with the applications of valuation methods to the most common water uses, namely irrigation, industrial use and household or municipal use. In addition, separate sections are devoted to the valuation of flood risk reduction and selected water-related ecosystem goods and services, like water quality improvements and outdoor recreation. Each section is illustrated with an abundance of examples from past applications. Many readers will probably appreciate this part of the book the most because it provides responses to various questions that most analysts are facing in an attempt to estimate the economic value of water in a specific context. This includes peculiarities that one needs to take into account when valuing water, including distinctive problems, pitfalls and suitable valuation methods for each type of application. Some updates of the book merit special attention. A new section on biofuels and hydraulic fracking is timely and welcome since these two types of water uses in energy production have become increasingly important in addition to the more traditional use in the hydropower sector. Another novelty is that an entire chapter has rightly been dedicated to measuring the benefits of flood risk reduction. Projected increases in heavy precipitation and glacial retreat due to climate change are likely to augment flooding frequency. At the same time, economic losses due to floods are expected to increase in the absence of additional protection measures (IPCC, 2012). The overall flood risk is therefore likely to rise. For this reason, one can anticipate a growing need for estimating people’s willingness to pay for, and deriving economic values of, implementing further measures to reduce flood risk. This indeed seems to be an expanding niche in the field
of environmental economics which is attracting an increasing number of scholars (e.g. Brouwer et al., 2009; Botzen and van den Bergh, 2012; Dekker et al., 2014).

There are not many issues relevant for the economic valuation of water which are not covered in this book. However, a topic that could have been covered in greater detail and more systematically in the form of a chapter is drought risk reduction. Not only because droughts are a counterpart to floods, but primarily because droughts have so far not received nearly as much attention in the economic valuation literature as floods have, despite the fact that they can generate economic losses in a similar order of magnitude (e.g. EC, 2007; EEA, 2010). Even though drought frequently serves as an example throughout the book, devoting a whole chapter to it might have helped to raise awareness about the importance of its valuation and inspired researchers and practitioners to engage into the topic. Another point with a potential for improvement is the geographical distribution of practical examples. This refers in particular to the chapter on the valuation of selected water-related ecosystem goods and services, in which the dominance of applications from the U.S. in the developed countries context is noticeable. A considerable portion of this chapter focuses on the valuation of water quality improvements. Due to the implementation of Water Framework Directive in the EU, which sets as an objective to achieve a “good ecological status” of all water resources by 2015, there has been an explosion of research on the willingness to pay for improving water quality in many European countries over the past years (e.g. Bateman et al., 2011; Meyerhoff et al., 2014). Including some of these studies would have allowed for a more balanced geographical coverage of examples on this specific topic.

In summary, the second edition of “Determining the Economic Value of Water: Concepts and Methods” represents a state-of-the-art overview of the economic valuation of water. It is a small encyclopedia of water resource economics and as such strongly recommendable for anyone concerned with this topic. Although nowadays there is an overload of textbooks on economic valua-
tion, only a handful of them focuses specifically on water resources. Reading this book is therefore time well spent for professionals, policy makers, researchers, and students who are working on or are interested in water management, especially its economic dimension. They will be rewarded by the latest conceptual, methodological and practical insights in market and non-market valuation and their application to water resources.

References


