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Book reviews

Handbook on Contingent Valuation, edited by Anna Alberini and James R. Kahn. Published by Edward Elgar, Cheltenham, UK, 2006, pp. 425. ISBN 978 1 84064 208 7 (hdbk), £115.

This edited volume of 425 pages contains 20 chapters by 39 different contributors, many of whom are extremely prominent in the academic literature for contingent valuation (CV). The book is comprised of three sections: Contingent valuation and economic theory, Econometric and empirical issues in contingent valuation and Applications. The editors' objectives for the book are 'to attempt to contribute to the process of reducing conflicts by improving valuation methods, reducing biases associated with estimates and developing an improved understanding of the strengths and weaknesses of CV and associated methodologies' and 'to improve the understanding of contingent valuation so that it can be used in the decision-making process and to further develop the techniques to improve the validity of the estimates, thereby increasing the confidence by which we can use estimates in the decision-making process.' While laudatory in their own right, these objectives seem somewhat at odds with the purpose of a handbook, which is variously described as 'a concise reference book covering a particular subject',¹ 'a book that contains advice about how to do something',² and 'a book giving information such as basic facts or instructions'.³ A handbook could therefore be expected to provide an introduction to the purposes of CV, the steps necessary to implement a CV, and the issues associated with CV as well as a summary of research related to those issues. The primary target audience for a handbook is likely to include graduate students, consultants and resource management agency personnel.

For some people CV is a contentious process that remains at the core of much applied non-market valuation. It has seen several robust challenges that have instigated widespread research into the purposes, practices and interpretations of the technique. Given the controversy surrounding CV, understanding its relevance to environmental decision making is important. There seems little point in addressing practical matters until conceptual acceptance is obtained. Three chapters assess the role of standard benefit-cost analysis in informing policy and how CV fits in that role. Whitehead and Blomquist accept the standard model of choice adopted in earlier chapters by Smith and Whitehead, and investigate challenges to practice, including temporal bias and non-homogeneous and unrealistic discount rates, multipart

¹ Merriam-Webster online dictionary. <http://www.m-w.com/dictionary>.

² Cambridge Dictionary of American English. <http://dictionary.cambridge.org/>.

³ Compact Oxford English Dictionary. http://www.askoxford.com/concise_oed/.

policy (an issue not unique to CV), implied property rights, the spatial extent of market boundaries and issues to do with non-response and aggregation.

Cooper goes wider, essentially questioning the merits of benefit-cost analysis, with little discussion of CV *per se*. He provides useful discussions about protected values, the disenfranchisement of people who choose not to participate and about disenfranchisement that occurs because some people hold extreme values. Cooper challenges the choice model adopted in the earlier chapters based on observations about human nature and common behaviours that do not conform to the model of choice underlying CV and other non-market valuation methods. In considering how social decisions should be made. He concludes that BCA provides just one dimension of information in a deliberative decision making process. This discussion could have provided more references to assist the interested reader to access the relevant literature.

Haddad and Howarth, like Cooper, call for decisions to be based on discursive processes; however, they go further than Cooper and reject CV altogether. They base this call on the often high rates of protest bids experienced in CV applications, the need to permit altruistic values to enter the process, and a presumption of non-additivity in the social value function. Claiming that ecological economics entails making management decisions based on moral values that cannot be reduced to monetary valuation, they struggle to accept CV. Ultimately they reject CV by rejecting utilitarianism. This chapter isn't as well written as the other evaluations of the role of CV – the authors tend towards vague assertions. While many threads of relevance are opened up, they do not coalesce to a firm conclusion.

John Whitehead contributes a practitioner's primer. His chapter is notable for its irreverent style and lack of references. It is a thoroughly enjoyable read, serving the commendable purpose of walking the reader through the CV process step-by-step and discussing the decisions that must be made along the way. While this approach entails some simplifications, it still manages to draw out much of the history and many of the contemporary issues of CV. This chapter really will help someone who has never undertaken CV before. It highlights the hidden complexities of what appears to be a very simple technique and provides a readily accessible introduction to alternative approaches and their pitfalls and advantages. This chapter will be a boon to dissertation students. It would also be worth encouraging clients who are commissioning a CV study to read it – they will gain an understanding of why this simple process costs so much money and takes so much time. However, it is strange that Whitehead's easy introduction follows the much more difficult to comprehend contribution by Kerry Smith.

Smith's chapter provides an extremely useful summary of the history of CV, the main concerns about CV, and the core research items that have been addressed. In order to fit all of this into a single chapter (which still occupies one-seventh of the book), Smith has been forced to write in a manner that presumes familiarity with the topics. This makes the chapter rather daunting for someone coming to grips with CV for the first time, although the excellent

footnotes and extensive references to source articles make this an extremely valuable contribution. Especially valuable are Smith's insights into why values estimated with CV can not be verified or refuted. Smith concludes his contributions with a challenging section that illustrates an approach for using CV and revealed preference information simultaneously to improve estimates of site quality changes. Smith's underlying message is for CV practitioners to build their models, CV questions and analyses on the theory of individual choice. He demonstrates the problems that arise when this advice is not heeded and offers insights into how it can be done better. While this chapter is not easy for the neophyte, it is worth persevering with – it contains many profound insights that stimulate thought about the merits and limitations of CV.

Laura Taylor provides a beautifully crafted overview of experimental tests of key issues of relevance to the accuracy of CV. She demonstrates clearly that tests of theory are simultaneous tests of the theory itself and of the experimental design used to test the theory. Taylor illustrates the difficulties this poses in relation to tests of hypothetical bias (validity tests), the WTA/WTP discrepancy, calibration, internal consistency, survey design and the contribution mechanism. Together, the chapters by Whitehead, Smith and Taylor provide ample evidence to illustrate the central concerns about CV and why they are unlikely to be resolved any time soon. They are well written and form a solid foundation for closer investigation of key issues.

Leon and Leon show how Bayesian analysis can be applied to dichotomous choice and double-bounded contingent valuation. This is a developing area in CV, which dictates a little handholding, particularly as many experienced CV practitioners will not be familiar with the Bayesian approach. This chapter is not for the mathematically squeamish, being far more advanced than anything elsewhere in the book. It relies heavily on jargon, which makes it somewhat impenetrable. The chapter is shorter than most, but is of more significance than many. A simpler introduction to the central concepts to ease access for the less statistically competent and those encountering Bayesian analysis for the first time would have improved it.

The book is narrowly focused on the United States. For example, John Loomis provides an excellent overview of how CV affects environmental management in the USA. His chapter shows that CV can and does derive values that are significant, are taken seriously, and that can change decisions. It would have been useful to have gone beyond the USA to review acceptance and use of CV in other jurisdictions.

Better editorial control could have improved the book. The allocation of chapters to the three main sections and their ordering within the sections is rather haphazard. There are numerous typographical errors, some of which are impediments to clear understanding. Many chapters revisit the same content: CV validity, the Exxon Valdez story, CV biases, warm glow effects and others are each traversed several times, contributing to a piecemeal feel to the whole book. The chapters differ in quality, with some being outstanding, others rather naïve and the relevance of others being unclear.

This is an expensive, but mixed bag. It is not a handbook, nor does it meet the editors' lofty aims for methodological development. The content provides a good understanding of what CV is, its limitations and fields requiring further development. While requiring some effort to structure the many threads scattered throughout, this book contains many gems and is a worthy addition to the CV analyst's bookshelf.

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Institutional Reforms in Indian Irrigation by Ashok Gulati, Ruth Meinzen-Dick and K.V. Raju. Published by SAGE Publications, New Delhi, India, 2005, pp. 322, ISBN 0 7619 3311 5 (Hb), Rs 595.

Irrigation has played an important role in Indian agriculture, helping to transform India from an importer to a net exporter of foodgrains despite a significant increase in its population. Growing water demands for agriculture, industries, and domestic use as the population and economy grow are creating or increasing water scarcity. At the same time, the fiscal shortfalls of the national and state governments mean that the governments can no longer afford the massive subsidies that have been going to irrigation. The priority given to irrigation financing is increasingly being challenged as needs for public investment in other sectors gain prominence.

The authors of this book aim to contribute to reforms that will improve the performance of Indian irrigation through analysis of relevant problems, especially the extent of fiscal pressures on irrigation management and their relationship to irrigation system performance. The authors examine the 'vicious circle' of factors leading to poor performance from a political economy perspective, dealing specifically with the constraints governments face on the financing side as well as the political side in dealing with farmers' demands. The focus of the book is on the financial and operational aspects of major and medium canal irrigation, the problems, and the options for reform. The authors collected relevant data at several levels, so their analysis presents the macro all-India picture, the state-level picture in Rajasthan and Karnataka, the project specific picture of four systems within those states, and finally at the level of distributaries within those systems.

There are nine chapters in the book. The key issues facing canal irrigation in India are introduced in Chapter 1, and the major problems which contribute to poor system performance are presented in a connected fashion.

Chapter 2 involves the examination of the water resource and irrigation situation in India as a whole, in the Rajasthan and Karnataka states, and in the selected major irrigation systems. Here, the authors critically examine the degree of water scarcity, the importance of irrigation, and the status of

irrigation development in each state. The authors also provide some background on the four irrigation systems. It is emphasised that despite the vast amounts of money that have gone into irrigation system development and operation, there has been relatively little attention to financing issues, especially for capital costs.

Chapter 3 reports the analysis of total state expenditure on irrigation and the gap between expenses and cost recovery using a methodology that accounts for the effect of inflation, gestation lags and pure time preference. The results allow presentation of the true magnitude of irrigation expenditure. Based on their analysis, the authors emphasise that operators of irrigation systems should not only worry about physical droughts but also about financial droughts. This is a clear signal to resource managers and policy makers at both state and federal levels to pay attention to the irrigation sector if a key policy aim is continued growth and development involving irrigation resources.

In Chapter 4 the authors address the question of whether irrigation farmers are extracting large rents from the remainder of society. This is done by considering total streams of direct and indirect financing. The authors found that canal irrigation financing suffers from two distinctive problems: (i) the funding for construction of ongoing or new canal networks has shrunk, leading to undue delays in the completion of projects, which in turn has raised costs and reduced the benefits of irrigation; and (ii) the resources for normal operation and maintenance are also under severe pressure because of low rates of cost recovery from canal irrigation, and the difficulty of allocating more funds from state budgets because of the overall fiscal crisis. They also found that financing has changed over time, from direct cost recovery in the colonial period, to more indirect charges on irrigated farmers after independence. They argue that in the context of ongoing economic liberalisation, it would be more appropriate to shift back from indirect to direct cost recovery to improve the efficiency of irrigation system management. A number of types of irrigation fees are reviewed in the chapter, including volumetric pricing, wholesaling to water users associations and crop-area-based charges in terms of their practical feasibility along with the incentives they create for water conservation.

In Chapter 5 the authors take up the case of institutional reform to set up a financially autonomous irrigation agency, the Krishna Bhagya Jal Nigam Limited in Karnataka, and examine the extent to which the theoretical advantages of autonomous agencies have been realised in this case. The authors found that the autonomous structure has allowed the state to mobilise large amounts of money from private sources to complete the irrigation project in an accelerated manner. But whether it has led to cost reductions, whether expenditure patterns have been transparent, and whether these corporations have infused the spirit of efficiency in the functionaries by linking incentives with performance remains doubtful. These corporations are still financially dependent on the state, and they fail to deliver reforms beyond

mobilisation of capital funds and construction of physical infrastructure. Failure to consider capital repayments remains their greatest weakness.

Chapter 6 involves reviewing the various approaches to participatory irrigation management (PIM) in different states in India, with particular attention to selected irrigation systems in Karnataka and Rajasthan. The authors examine the various approaches in terms of the level of organisation of the users and changes in irrigation charges, and then reviews the types of legislative reforms required for PIM policy statements to succeed in changing the management of irrigation systems. The authors argue that success of PIM depends on moving from recommendations and plans to action on the ground. It is not enough for the government to embrace PIM wholeheartedly because without farmers' response nothing will happen.

In Chapter 7 the authors review the factors that have been identified as potentially affecting the likelihood of organised farmer participation, focusing specifically on aspects of the physical/technical, socioeconomic and policy environment. They argue that PIM policy reforms cannot be carried out by government alone, and that farmers should take on an active role. The authors provide a review of a number of studies of farmer participation in irrigation in India and in other countries that suggest which factors will be critical for the success of farmer participation and irrigation management transfer.

Chapter 8 involves an examination of the empirical evidence of the extent of farmer participation in sample sites in the four selected irrigation systems. In the chapter, the authors examine three forms of farmer participation in irrigation, namely organisations, institutions and collective action. The authors do an excellent job of empirically testing the conceptual model developed in Chapter 7 to identify the factors that actually influence the likelihood that farmers will organise into some form of water users associations. They also examine the factors influencing whether farmers will act together for irrigation-related purposes and argue that knowledge of the major factors that increase the likelihood that participation can help develop more effective programs to implement PIM policies.

In Chapter 9 the major policy implications of the various components of this study are drawn together. The linkages between the various chapters are highlighted, the findings and recommendations of the study are summarised, and areas for further research, experimentation and action are identified. The authors particularly examine the need for greater accountability measures to govern both the development and ongoing management of irrigation systems, and the scope for various reforms, including independent regulatory commissions, to achieve this.

The authors conclude that reforms to the irrigation agencies alone are not likely to improve the performance of systems, since government agencies are not the most efficient body for all necessary irrigation tasks. In many other countries water markets have been proposed to address both water quantity and quality issues as they provide incentives to irrigators to reduce water applications and drainage production without the income-reducing consequences or

administrative requirements of a tax system. Though great emphasis is given in this book on key problems facing the Indian irrigation sector, there is little discussion of the potential for water markets. Nevertheless, the book provides a thorough understanding of the key technical, social, economic and political issues. In particular, it provides much better understanding of the dynamics of change in a rural society, the role of social capital and the role of institutions that can bring about transparency and accountability. The book will be a valuable addition for resource managers, irrigators, policy makers and researchers not only in India but also in other countries, especially in developing countries (such as Pakistan) where similar problems exist and reform in the irrigation sector is critical.

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The Distributional Effects of Environmental Policy, edited by Ysé Serret and Nick Johnstone. Published by Edward Elgar, Cheltenham, UK, 2006, pp. x + 323, ISBN 13:978 1 84542 315 5, £65.

In addressing the distributional effects of environmental policy the contributors to this book provide a valuable contribution to the literature on environmental policy. The book was developed from the proceedings of an OECD workshop on the 'Distribution of Benefits and Costs of Environmental Policies: Analysis, Evidence and Policy Issues' held in 2003. The 'Social and Environment Interface' work programme is one of the key priorities of the OECD's environmental strategy for the first decade of the twenty-first century.

The volume is focused on the distributional impacts associated with both the distribution of environmental quality and the distribution of the financial impacts of environmental policy. An acknowledged limitation is that distributional impacts according to economic status are considered, while other possible criteria such as ethnicity, age, geographical or temporal distribution are not included. The editors highlight three objectives of the book:

- 'to provide a conceptual framework to better understand the disparities in the distributional effects of environmental policy';
- to review empirical evidence on the distributional effects of environmental policy in the context of the defined focus; and
- 'to assess the policy implications by reviewing some of the challenges facing policy makers as they seek to design environmentally effective and economically efficient environmental policies, while ensuring that social concerns such as distributional effects are simultaneously addressed.'

Broadly in line with these stated objectives, the articles are conveniently divided into three sections. Section one consists of two chapters which provide

the conceptual framework and literature review; one by David Pearce on the framework for assessing the distribution of environmental quality and the second by Bengt Kriström on the framework for assessing the distribution of financial effects of environmental policy. The chapter by David Pearce, who sadly passed away late in 2005 before publication of the proceedings, is particularly timely in providing an excellent foundation for the book by a well respected academic in the field. When combined, the articles by Pearce and Kristöm provide a comprehensive theoretical foundation for the later discussion by outlining the conceptual background to the incorporation of distribution effects in policy analysis.

Pearce examines two particular strands of the environmental justice literature; whether the existing distribution of environmental 'bads' is regressive and, more briefly, discussion of the distribution of benefits from environmental policies. Examination of the largely US-based empirical evidence, suggests a probable leaning towards the view that *existing* environmental quality and income are negatively correlated in many areas. However, this finding is not without caveats which are elaborated in the chapter. In terms of the policy implications for *new policy measures* Pearce reinforces the importance of a weighted cost-benefit criteria for assessing the distributional incidence of the benefits and costs of environmental policy.

The chapter by Kristöm follows neatly by reaffirming the limitations of policy analysis in terms of the sum of the net benefits, arguing that while efficiency and equity cannot be easily separated, aspects of policy assessment can be distinguished. Acknowledgement of the distributional impacts does not imply that policy makers have to aspire for equity; instead it means the inclusion of distributional effects in policy analysis. As he remarks, 'while environmental economists have been focusing on efficiency issues, the fact that equity is important in shaping environmental policy is increasingly being appreciated' (p. 129).

The second section of the volume provides evidence on the distributional effects of environmental policies through two case studies. Chapter four is by Chisthart Bork on the distributional effects of ecological tax reform in Germany, and chapter five is by Ronald Sutherland discussing the distributive effects of direct regulation via an analysis of energy efficient appliance standards. In short, these interesting case studies support the view raised in the theoretical chapters that equity and efficiency should be studied together, 'because the underlying cause of regulatory inefficiency also produces inequity' (p. 172). Further, Sutherland emphasises the time value of benefits in particular, with households placing a different value on the flow of future benefits depending on their income level. The case studies in the volume also provide an extension to discussion of the distributional implications of different types of policies, such as, market based instruments versus direct regulation.

The third and concluding section of the book consists of three chapters providing evidence on the distribution of environmental quality; chapter six

on exposure to environmental urban noise pollution in Birmingham by Julii Brainard, Andrew Jones, Ian Bateman and Andrew Lovett, chapter seven on environmental equity and the siting of hazardous waste facilities in OECD countries by James Hamilton and chapter eight on conclusions and policy implications by the editors. Given that previous work on incorporating distribution in environmental policy has tended to focus on income distribution, raising the profile of distributional questions with respect to environmental quality is a very worthwhile contribution to the literature.

The book is timely and welcome in encouraging discussion of the distributional effects of environmental policy. In some respects the material in the volume addresses the first step of a much needed broader discussion. Raising the distributional debate opens a 'can of worms' with which many economists feel uncomfortable. As Sutherland suggests, this is not surprising since there is no commonly accepted definition of optimum equity: certainly nothing analogous to maximum net benefits from economic efficiency. Acknowledgement and analysis of distributional impacts, whether they are financial or in terms of environmental quality, does not answer the question of defining 'fairness' or whose distributional preferences are to be considered. Furthermore, assessment of distributional effects results in policy makers being confronted with important choices in terms of decisions regarding whether adverse effects should be tackled through the modification of the environmental policy or through other measures. And, although the incorporation of equity considerations in policy analysis is crucial, balancing the objectives of efficiency and equity provides further challenges. This book is a beginning point, and comprehensive treatment of the distributional effects of environmental policy will require further volumes.

Nevertheless, this work by the OECD is valuable for the succinct theoretical chapters and the snapshot of recent empirical research in the area. It provides a well-organised collection of articles which are highly readable and address immensely interesting questions. For those with an involvement or interest in environmental policy it is well worth acquiring.

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