

Book Reviews

The Political Economy of Water Pricing Reform

Edited by Ariel Dinar, Oxford & New York: Oxford University Press, 2000

With the growth in books and articles proclaiming the spectre of widespread water scarcity, it is surprising that little has been written concerning pricing and demand-management strategies to cope with water scarcity. This book edited by Ariel Dinar helps fill this void in the literature. It deals with one very important part of demand management: that of water pricing reform. The chapters of most interest to those working on water policy are those reviewing country or city efforts to reform water pricing. Chapters 8, 9, 11, 12, and 14–18 fall into this category. Also of interest is Chapter 10, which gives a clear picture of what can and cannot be achieved with increasing block pricing.

The book starts with the obligatory introductory chapter that includes a summary of chapters as well as text that one might expect in a concluding chapter. Thus there is a short section on what was learned from the analysis of water pricing reform and what additional research is needed. The chapter also includes a short section on the conditions for successful reforms, which highlights the need to understand the economic and political implications of any proposed reform. After Chapter 1, there are four chapters grouped under the heading 'political economy frameworks and water reform'. These chapters illustrate the diversity of approaches that fit under the rubric of political economy frameworks. However, given this section's focus on model building, most policy makers can skim over it briefly.

In Chapter 2, Bromley addresses the issue of property rights and water management in the context of irrigation sources and externalities. He models the problem for surface water and shows that to achieve optimal system use, each farmer would have to bear any downstream costs, although the transaction costs of doing so may be prohibitive. For groundwater, he borrows from Provencher's common property model to illustrate reciprocal externalities when property rights are not assigned. He then proposes a model using Sugden's idea of reciprocity, whereby each individual contributes to the public good and suggests it as a way to structure property rights.

Rausser in Chapter 3 applies two analytical decision-making frameworks to water resources, the Nash–Harsanyi collective decision-making model and the Rausser–Simon multilateral bargaining model. The chapter provides a thorough background on the Nash–Harsanyi model and a taste of the Rausser–Simon model. However, for the policy maker, the chapter is too long and technical to be of any practical use regarding water pricing.

Chapter 4 concerns California water districts and how their voting rules influence water pricing and crops grown. The chapter is difficult to read but illustrates the importance of water district organization. The authors test

whether or not the electoral rule (one person one vote vs. one dollar assessed value one vote) influences crops grown in the district and how district revenue is obtained. They conclude that the type of electoral rule within the district influences revenue collection and water prices as well as the type of crops grown.

In Chapter 5, Tsur analyses water pricing under different implementation costs and asymmetric information. Water pricing is divided into volumetric and non-volumetric methods and their efficiency is measured by income generated. Although volumetric pricing is often the most efficient, Tsur contends that its high transaction costs outweigh the efficient gains. Eight cases—ranging from complete information and no transaction costs, to metered water with asymmetric information regarding water response—are compared and well illustrated. He concludes that unobserved water use does not pose a problem, since water use can be estimated from observed output or other inputs.

The next four chapters are in a section titled 'empirical approaches to the political economy of water pricing reforms', yet only Chapters 7 and 8 emphasize empirical analysis. In Chapter 6, Renzetti emphasizes the need to know the structure of water demand so that reformers can better predict what the water price reforms will cost users. He argues that policy makers need to consider both the price for connections as well as the price for supply. One of the strengths of this chapter is its review of pricing rules and the factors that are likely to influence the effectiveness of water-pricing reform.

In Chapter 7, Diao and Roe use an intertemporal general equilibrium model to show the potential welfare benefits of trade reform in Morocco. First, they find that the removal of tariff and non-tariff barriers, which protect wheat, causes a shift toward production of fruits and vegetables in which Morocco has a comparative advantage. Second, the creation of a water-use-rights market creates positive long-term benefits for the irrigated sector, increases rural wages, and improves water-use efficiency. The authors do not model actual reform, but show the potential for reform.

In Chapter 8, Cueva and Lauria assess the probability that the water-rate reform policy in Dakar, Senegal will be financially self-sustainable using a Monte Carlo Simulation based on a contingent valuation study of improved water supply in households. The authors conclude that even increasing the price of water to the breakeven point, based on expected net revenue, would only raise the probability of self-sufficiency to less than 50%. The analysis has shortcomings because only residential consumption was allowed to change and price increases were limited to households with a private connection.

In Chapter 9, Hall analyses the rate-setting process of the Blue Ribbon Committee on Water Rates in Los Angeles during the 1986–91 drought. He sketches out the microeconomics of rate setting and explains how the political process shaped the negotiations, which resulted in a movement toward more efficient pricing. The chapter provides a practical case study of tradeoffs between fairness, political acceptability and efficiency in water pricing. Hall also discusses how to identify heterogeneity in resident water demand in order to create the most politically feasible set of block prices.

The third section groups another four chapters under the title 'political economy of urban water pricing implementation'. Two of the chapters in this section, Chapters 10 and 12, come to different conclusions concerning increasing block pricing. Boland and Whittington in Chapter 10 take a critical look at the

use of the increasing block rate in developing countries. They examine five problems and limitations with increasing block pricing. The chapter is well written and does an excellent job of alerting the reader to the reasons why uniform volumetric water pricing may be a better alternative than increasing block pricing, particularly if the poor are not served by the public system.

Strand's presentation of the political economy of water pricing in Tegucigalpa aptly illustrates the challenges facing developing countries wishing to reform water pricing. The water utility receives less than its marginal costs from both commercial and household users resulting in an inadequate infrastructure, sporadic service, and a failure to supply many households. To increase the feasibility of reform, Strand recommends gradual water price reform combined with visible service improvements to gain support from politically active households.

In Chapter 12, Hewitt gives an excellent overview and background on residential water pricing. Using a logit regression, she finds that private utilities and smaller utilities are less likely to adopt market mimicking rates and favour declining block rates because they are easier to administer and provide steady revenue. She argues that with the trend toward privatization, this behaviour suggests a role for government regulation to ensure adoption of more market-oriented pricing schemes such as increasing block pricing.

In Chapter 13, Van Humbeck examines the welfare effects of residential water and wastewater policy reform in the Flanders region of Belgium. The government's goal was to progressively allow low-income households to pay proportionately less of their income for basic services. Van Humbeck uses several distributional measures to compare the effects of water policy reform and finds that the poor are relatively worse off, but because of its narrow focus the chapter will be of limited interest.

The final section includes five country case studies. For a water policy maker or a water policy analyst, this will be the section of most interest. Chapter 14 is the place to start because Musgrave does an excellent job of describing water-pricing reform in Australia. In general, he finds that reform has increased cost recovery, removed many of the cross-subsidies, and fostered the development of water markets. The analysis focuses on two cases in New South Wales and identifies the environmental movement as an important member of the political coalition supporting water reform. Musgrave also finds that cost identification, measurement and sharing are particularly difficult in the rural sector, where the cost of reform is high and opposition to reform is growing.

Chapters 15 and 16 have a common element: the first considers reform in Brazil while the other compares reform in one Brazilian state (Ceará) with reform in Mexico. The development of water regulations and pricing mechanisms in Brazil is shown to be slow and uncoordinated. The authors argue that part of the problem in the water sector was its domination by electric power interests from 1960 to 1989. Only after the privatization of the electric power sector, which diverted their attention, was the secretariat of water resources able to take control of bulk water-fee collection. The chapter includes several cases of proposed reforms and one case of actual reform in the state of Ceará.

In Chapter 16, water reform in Ceará, Brazil is more fully developed. The comparison between Ceará and Mexico helps illustrate the need for basic institutional reform as part of water reform. Not surprisingly, they find that existing agencies and stakeholders either delay or promote change and cause the

transaction costs of reform to be high. Water rights are not tradable in Ceará, because of fears that large-scale landowners may capture most of the rights, while in Mexico water rights are being traded, yet both are having problems with water pricing.

Wambia in Chapter 17 has a difficult task of describing a complex process of reform. With attempts to improve water management in Pakistan dating back 30 years, it is not surprising that the latest reforms have been gradual and involve stakeholders' negotiations. The author very effectively describes the forces that oppose reform and suggests that radical reform is not likely since some reforms have already been modified owing to strong opposition. The likely outcome is a transfer of management responsibility to farmers at the tertiary level, a redefinition of operational jurisdiction of different water agencies, and an increasing private sector contracting for operations and maintenance.

The final chapter takes a broad look at irrigation water-pricing reform in Yemen. Ward provides a very interesting tale of how past credit and pricing strategies helped the country meet its irrigation development objectives and modernize agriculture. Now with the push for higher water prices and reduced subsidies, it will be difficult for Yemen to continue to pursue its development objectives. Farmer interests and those of powerful groups must be balanced against the interest of donors in setting prices. This will make price reform difficult to sustain since farmers face a significant decline in income unless it can be offset by productivity increases.

Dinar has put together an important contribution to the literature that is worth reading selectively. By having the authors examine reform in the context of the political economy, he has brought out many aspects of water pricing that are not found in an economics textbook. The political process of reform can be messy and does not occur just because the economic benefits from doing so exceed the costs. What is now needed is an expansion of this work that continues to examine demand management and price reform in a broad political economy framework.

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Ecological Economics. A Political Economics Approach to Environment and Development

By Peter Soderbaum, London: Earthscan Publications, 2000, 152 pp.

This book on ecological economics focuses on positional analysis as opposed to neo-classical economics. The main objective is to develop an alternative which would represent a holistic and disaggregated view of economics that is multidimensional and emphasizes pattern thinking, images and profiles, where numbers and calculations represent only part of the economic analysis. Challenging established paradigms is recognized as the only way to change society in the direction of more responsible behaviour towards the environment. The importance of societal ideologies and ethics in relation to environmental management, as well as transdisciplinary and multidimensional generation of knowledge, are presented in a very clear way. Interactions and dialogue between the scientific

communities and societies are recognized as a good alternative to produce new ideas.

While science and technology have played an important role in furthering a societal development path, it seems that this path needs to be seriously reconsidered and modified to suit present conditions. Even when science is a tool for generation of new knowledge, it can provide only one part of the solutions to the problems in the fields of environment and development: society will provide the other half. Thus, academicians should consider societal ideas, ideologies and values, as they are important expressions of education, cultural background, and most importantly, perceptions and attitudes towards reality. Alternative views on development and the environment cannot be generated only by economic sciences, but must emerge from the humanistic and social sciences as well. It is thus surprising that even though interdisciplinarity is very clearly a must for development, the different disciplines still do not recognize, first, that knowledge is not generated by only one group from a specific discipline and within the universities, but also by society as a whole, and second, that a dynamic exchange of views would benefit all parties.

Ecological economics is described in this book as "a transdisciplinary field of study rather than a single discipline, where scholars from economics and ecology can contribute, but also from social sciences other than economics (sociology, political sciences, business management, educational science), humanities and natural and engineering sciences". A second characteristic of ecological economics is its commitment to engage in public debate and practical actions with the aspiration to deal constructively with problems.

The author points out that it often appears that neo-classical economists feel that the protection of their conceptual framework is far more important than protection of the environment. Whenever neo-classical economics cannot explain contemporary phenomena or solve the current problems, it will probably be time to think in terms not of a paradigm-shift, since the change of one paradigm to another would end equally in a single ideology, but of the alternative of paradigm coexistence. This new paradigm could open a whole range of alternatives which are richer in nature, and are more likely to represent social realities simply because they favour consideration of pluralism.

Soderbaum argues that the reason why human ideologies and ethics have to be understood in the race to try either to reduce environmental degradation or to improve the current environmental conditions is precisely because it is the humans who affect the environment in different degrees with their activities and attitudes. Since the societal values are expressed in human preferences and activities, it is fundamental to understand first the societal ideologies, and then focus on the environment. This importance of societal values is probably the reason why the social sciences, other than economics, are gaining ground in the dialogue on environmental issues.

Different economic ideologies are presented in the book but the main focus is on institutionalism, since it "remains sensitive to value issues and transdisciplinary orientation". Institutional economics is on the evolutionary side, and relies on pattern models, while neo-classical economics tends to be mechanistic, with a preference for mathematical models.

The author presents different economic paradigms, ideologies which are somewhat similar to those that reign in the field of environment and water resources management. The needs of the world have changed very fast in recent

years, requiring new responses and a demand for participation from various stakeholders. Thus, in order to identify and understand these changes and to propose alternative theories and practices, scientists would have to integrate in their studies the societal viewpoints. Scientists may have to come down from their ivory towers and interact with as many interested parties as possible. Dialogue, negotiation, consensus-building and conflict management are features of this different approach to making efficient decisions. The previous role of scientists, to develop theories and then propose solutions in isolation, has only limited value in present society, since the proposed alternative may not be compatible with reality.

It is difficult to argue against the richness of the coexistence of pluralism of paradigms. Societal behaviour and ideological preferences, and their relation with the environment, water included, are so complex that scientists need a different, open-minded and flexible approach to understand these intricate interrelations. This makes it necessary to develop principles that are flexible enough to include the ideological orientations of the actors, both multifaceted and multidimensional, with the equally complex impacts of their decisions.

The author proposes the existence of both a Political Economic Person (PEP) and a Political Economic Organization (PEO). Neo-classical economics tends to see individuals as instantly reacting to price signals, institutionalism, and many other social factors, but does not give adequate emphasis to the important role of habits in human behaviour. The PEP is seen as a social being, whose decisions depend not on price signals, but on habitual behaviours, conscious decision-making and ideological orientations. Since humans are largely the reason for environmental problems, and they also play a significant role in solving these problems, this fact should be reflected in the world of theories and models of alternative micro-economics

It is rightly emphasized that science cannot and should not dictate the 'correct-only' ideology for society, and thus other conceptual, more open-minded, frameworks should be considered. Increased use of environmental impact assessment (EIA) and environmental impact statements (EIS) as processes and documents, as well as environmental management systems (EMS) in some ways counteracts the dominance of monetary thinking in relation to environmental issues, and thus to a more comprehensive approach which could include performance and responsibilities.

The time has come to move from rhetorics to implementation. However, this does not seem to be the case, at least for most countries of the developing world. It is impossible to disagree that EIA, EIS and EMS have great values in terms of viewing the environmental issues in a broader perspective, rather than one restricted to the very narrow view of monetary thinking alone. Unfortunately, these, as well as many other environmental tools, will only be useful and beneficial provided they are implemented. This is still far from being a reality in the developing world. This reviewer may add that one of the main problems of the developing world is wanting to catch up with the global trends in terms of environment and development, without having the functional institutions, expertise, resources, or ultimately the political will.

Alternatives to cost benefit analysis, with its monetary reductionism, are analysed, since monetary positions represent only a partial picture. However, the use of other common denominators (utilities or energy units) would only result in "one kind of reductionism substituting another". The alternative

would thus be a holistic and disaggregated view of economics: multidimensional rather than one-dimensional analysis, and an emphasis on pattern thinking, images, and profiles where numbers and calculations represent only part of the analysis.

Positional analysis (PA) is an approach to decision making in business and at the societal level where more than one perspective can be applied in the sense that alternatives are compared systematically, not only at the level of impacts but also at the level of interests. Both qualitative and quantitative information is used and knowledge is often fragmentary rather than complete. PA should be seen as part of a learning process for the actors involved. The results of the process in the form of specific decisions and their implementation are therefore particularly dependent on the activities and knowledge of all who contribute to the process.

It is recognized that there are limits to what can be achieved within the scope of the currently dominant world-views, paradigms and ideologies, and reasons why they should be challenged. Practice does not make a dialogue about paradigms and ideologies less important. If one wants to change society in the direction of ecological sustainability, one has to challenge the conventional idea of markets in favour of one where the behaviours of individuals reflect their environmental responsibilities.

The role of universities is highlighted because education, research and development are seen as critical activities for the transformation towards a responsible society, and descriptive studies of policy formation and decision making are proposed for environmental and development studies. However, most importantly, the author emphasizes the urgency of thinking within the discipline of economics in the sense that issues of values, ideologies and paradigms have to be discussed much more openly than at present. The only reasonable way to proceed in a democracy is to accept some degree of pluralism. The neo-classical tradition of pointing out 'scientific solutions to political problems' has to be changed. A more humble attitude in illuminating issues will re-establish confidence in economics and other associated disciplines.

The book concludes that economics is science in a certain sense, but it is also an ideology, and that economics with no intrinsic values is not realistic, since values are always implied. Thus, the presence of values and ideology in teaching, as well as when carrying our research, suggests that only a pluralistic attitude is compatible with democracy.

On reflection, the urgent need to move from concept to implementation is also of utmost importance for water professionals. Global paradigms such as sustainable development and integrated water resources management are unquestionably conceptually attractive but their actual implementation in operational terms has left much to be desired. It is desirable to analyse their applicability objectively: conceptual attractiveness alone is not a solution. Rather than ignoring the need for alternative conceptual frameworks which are implementable, individuals and institutions collectively should welcome constructive analyses and criticisms of the existing mainstream approaches. Some of the current conceptual frameworks and theories on water development should thus be carefully analysed, and if necessary reconsidered. Such new analyses and open discussions can only be beneficial to the water profession, and also can contribute to increasingly efficient water management. This is also an important issue that came up during the discussion of the first meeting of the Club of Tokyo, which

consists of 14 of the world's most influential water professionals. A report on the Club of Tokyo's first meeting can be found elsewhere in this issue.

In this day and age, when unidisciplinary professionals defend narrow, unrealistic single-discipline and unimplementable approaches, it is refreshing to find Soderbaum's advocacy of pluralism. This debate should not only be welcomed, but also be encouraged—on different global views, ideologies, theories of science and paradigms on a transdisciplinary level, with the ultimate goal of finding better solutions than those currently available as regards the environment and development.

The book is thought provoking, and easy to read and understand. Professionals in the area of water and other related fields will gain many insights on the problems they face, and the approaches that could be taken to find implementable and efficient solutions. This excellent book is strongly recommended.

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