


Book Reviews

 Ken Marshall and Colin Robinson, *The Economics of Energy Self-Sufficiency* (London: Heinemann Educational Books, 1984), 147 pages.

This book was designed to complete a series of reviews of British energy options and stresses British examples. However, it provides an excellent discussion of the general deficiencies of an energy self-sufficiency policy. The conclusion is hardly startling. The book's value is in showing clearly that nothing about energy markets justifies departure from the antiprotectionist tradition of economic analysis. In particular, Marshall and Robinson show that even if market failures exist, protectionism is unlikely to be the best corrective.

The core of the discussion is five chapters treating specific aspects of the issue—security, prices, macroeconomics, distant generations, and investment policy. This is preceded by background material; first, the history of British energy use, then a review of policy. Estimates are made of the many positions the United Kingdom may assume if no major policy changes are undertaken and then possible policy changes are suggested.

The security and price discussions conclude that the main impact of a self-sufficiency policy would be to reinforce the coal industry's position. Workers then could create supply disruptions that might be worse than any abroad, and price-raising wage concessions would then be required. Moreover, any direct isolation from the world market would be offset by the repercussions on others of a foreign supply disruption.

The danger of higher coal prices is presented as a response to the most abused claim of the British coal industry (and many other industries as well, e.g., the U.S. steel industry facing import competition) that protection will give time to effect cost reductions. Here, as often happens, the authors mute their case. If investment in eventual cost reduction were socially desirable, protectionism would not be needed.

Self-sufficiency is also deemed an unfruitful way for the United Kingdom to put pressures on world oil prices because the impacts of its reduction in consumption would be so small. Private forecasting errors could be in either direction, and the ability of government to make better forecast, is unclear. Thus, no guarantee exists that protection will produce a more efficient capacity level.

The authors' macro argument is that protection ultimately lowers total output making it harder to control inflation. Even if the economy is in a slack period, promoting fuel production is not necessarily the best approach. Two chapters deal with the social investment aspects of a self-sufficiency strategy. The first considers the environmental and depletion impacts of a coal- and nuclear-based self-sufficiency policy and the economics of a strategy based on renewables and conservation. The authors point out the potential environmental and depletion effects of pushing self-sufficiency and express fears about the high cost of a strategy of renewables.

The second chapter deals with the familiar issues of possible differences among socially efficient interest rates—that used by the private sector and that used by

government. The authors, like many market-oriented economists, suggest that the public sector, with its concern about elections, is more likely than the private sector to look only for a fast payoff.

The critical case for intervention lies in the externalities associated with development of new technologies. These justify intervention. (This distinction between the public nature of research and imperfections in capital markets, however, is the one point this otherwise impeccable discussion fails to clarify.) In any case, the key point made in the book is the unlikelihood that self-sufficiency is the optimum response to any plausible capital market imperfection.

The book should be useful to everyone seeking a concise statement of the defects of standard protectionist nostrums in energy and elsewhere.

Richard L. Gordon
The Pennsylvania State University

J. Rhoads Foster, George R. Hall, Stevan R. Holmberg, Charles F. Phillips, Jr., and Richard L. Wallace, eds., *Regulatory Reform: The State of the Regulatory Art, Emerging Concepts, and Procedures*. (Washington, D.C.: The Institute for the Study of Regulation, 1984), 267 pages.

The editors have collected nineteen papers or critiques that discuss cost of capital, adjustment clauses, rate base, incentives, recovery of expenditures on cancelled projects, the test year, and obligation to serve. The authors of the papers are academics, professional witnesses, regulators, and utility executives. So in short, the book contains the usual sort of topics, covered—with few exceptions—by competent authors who know their topics.

This is a timid book and I do not believe it approached many of the real issues. One would think that after almost two decades in the electric industry that have resembled *The Perils of Pauline*, the editors and authors might give us more than some palliatives and an unproven—but new—theory of cost of capital. In addition, with so much competition now evident in other natural monopolies, why is the possibility of competition in the electric sector and its impact on regulation ignored?

Perhaps the answers to these questions lie in the intentions of the editors. Phillips writes: "Deregulation has made substantial headway Proposals for partial deregulation for the electric and oil pipeline industries are being given consideration. But these substantive reforms . . . must not be permitted to result in a failure to continue efforts to undertake generic reforms where appropriate." Hall notes about the papers he reviewed: "The striking common feature of these papers is that each explicitly or implicitly asserts that the current regulatory process and its results fail to meet the public policy objectives of public utility regulation" He continues, ". . . that for the most part the proposed remedies do not involve fundamental

solutions or structural reform" Foster comments that the short-run quick fix "may make a greater contribution from a public interest perspective than would be an exclusive focus on basic reform measures. A quick fix may be the only available means of helping a regulated industry or firm through a period of economic distress." (Is that the purpose of regulation?)

The authors did their jobs within the narrow limits apparently set for them. Anyone who wants to learn more about the nuts and bolts aspects of regulation can learn something from the book.

Readers will even get some thoughtful essays on what is wrong with the regulatory system, but the book's title, *Regulatory Reform*, may be an overstatement of what is delivered.

Leonard S. Hyman

Merrill Lynch Capital Markets

Richard Bending and Richard Eden, *U.K. Energy, Structure, Prospects, and Policies*. (Cambridge: Cambridge University Press, 1984), 310 pages.

This book is an ambitious effort to suggest where British energy is heading as the year 2000 approaches. It also provides guidelines about how to adjust most effectively.

The core of the book is development of projections of energy market conditions. The authors distinguish two segments of their analysis—one dealing with consumption and the other with production. The consumption discussion is the more interesting. It begins with forecasts for the British economy and leads to an overview of historic patterns of energy use in the UK. The individual chapters are devoted to prospective energy use in four divisions: households, industry, transport, and services and agriculture. In each case, we are provided forecasts and a discussion of the technological forces affecting the expected outcomes. The projections build on extensive work done at the Cambridge University Energy Research Group. Stress is placed on the results with readers referred elsewhere for details of the analysis. Results suggest that the estimates are grounded in careful analyses of the economics and technology of fuel use. Clearly, they are the result of fruitful collaboration of social and natural scientists.

Turning to supply, a more descriptive and intuitive approach is taken. Here the chapters deal with electricity and nuclear, oil and gas, coal, and conservation. The last is largely a review of public policies. The electricity and nuclear discussion combines description of the British institutional framework, basic facts about electricity economics, and suggestions that by early in the twenty-first century nuclear power can make a major contribution to supplies. The oil and gas chapter also deals with both institutional and market factors. The main conclusion here is that North Sea resources will be depleted over the study period.

The chapter on coal adopts an approach similar to those of the other supply chapters and expresses concern that British coal output can be significantly expanded.

Prior to their analysis of energy consumption, the authors provide three introductory chapters. The first gives a preview of what is to come. The second develops what proves the critical premise of the study—world oil prices are certain to rise due to depletion of low cost resources. Energy policymaking experiences are reviewed in the third chapter.

The penultimate chapter, "Energy Outlook," assembles all the material into an overview of consumption patterns. The resulting model is one of heavy dependence on coal and nuclear. In light of the pessimism about British coal, it is implied that Britain will become a substantial importer of coal.

A concluding chapter titled "Policy" seeks to deal with the consequences of such a future. It provides a wide variety of suggestions that are highly sensible if not very startling. The basic propositions are that efficient prices should be charged but that more should be done to aid the transition.

Quite clearly, the conclusions of the study follow inevitably from acceptance of the increasing oil scarcity hypothesis. However, even those who disagree with this view will find much of value in the book. The view conveyed of British energy conditions is quite useful. The authors have a good understanding of how energy markets and public policy works. Specialists will be inspired to follow the numerous leads to more extensive efforts. The presentations are lucid and free from the excesses that mar most energy transition scenarios. The authors, in fact, may be too calm. Their moderation tends to underplay the case for greater efficiency. Warnings that British coal should be better managed, for example, seem too muted to overcome years of bad precedents. Acceptance of consumer education programs and possibly other aids is similarly muted. I would have liked a bit more skepticism.

In sum, the book is a good presentation of British energy questions. Those directly concerned will gain useful insights, and the rest of us have received a good overview.

Richard L. Gordon
The Pennsylvania State University

Jaime Marquez, Oil Price Effects and OPEC's Pricing Policy: An Optimal Control Approach. (Lexington, Mass.: Lexington Books, 1984).

Marquez sets exceedingly ambitious goals for himself, and I was quite skeptical about someone so young able to deliver what the table of contents seemed to promise. The kind of exposition and synthesis required to meet the stated objectives appeared well beyond someone so new to the field. Happily, my fears proved unwarranted.

This book is not merely about another interesting but isolated optimal control model of OPEC pricing decisions. Unlike many Ph.D. theses, it provides perspective

and context that enable the reader to relate the author's work to the real world problems addressed and to the work of others in this area. In fact, the synthesis is actually so well done that it is a strong point of the book. The book is a good primer on the world oil market and related work on energy-economy interactions and the theory of depletable resources. In terms of clarity, it rivals Richard L. Gordon's excellent *An Economic Analysis of World Energy Problems*, which addresses some of the same subjects. The depth, and particularly, breadth of Marquez' book make it must reading for all serious students of the world oil market, energy-economy interactions, energy security, analysis, and the theory of depletable resources.

The book starts with a brief but trenchant discussion of the effects of oil price elasticities and income effects on OPEC's optimal pricing policy. Following is a stylized theoretical model that deals with the international transmission of oil price effects. Typically, the model considers three world regions—OPEC, the developed countries, and the non-OPEC developing countries. The model, which includes endogenous income determination, fiscal policy response, and trade linkages, is rich enough to enable the author to develop a number of interesting insights. For example:

... the existence of international repercussions make ambiguous the impact of oil price increases on the real income of developed countries, even though these price increases unambiguously reduce the real income of non-OPEC developing countries. Finally, there are feedback effects of oil price changes to the demand for oil that should be taken into account in setting the optimal price of oil.

These results no doubt stem from the neoclassical production theory formulation of the non-OPEC developing country sector and the neo-Keynesian treatment of the developed country economies, but these formulational assumptions seem quite credible and bring with them interesting implications.

Not satisfied with the qualitative insights derived from the simple theoretical model, the author estimates a slightly more complicated model in the tradition of project LINK with econometrically estimated parameters. Here the alternative approaches are not just acknowledged but actually compared with the chosen alternative on equal footing. The chapter on the formulation of the econometric model is followed by a very worthwhile chapter on the validation of that model. In it, a dynamic simulation of the estimated model for the 1968–1977 period is found to track history rather well and a strong systematic multiplier analysis is used to understand the model's basic behavioral characteristics and assess their plausibility.

The final chapter of the book focuses directly on derivation of optimal oil prices, first using classical (closed-loop) depletable resource theory à la Hotelling, Nordhaus, Solow, et al., then using iterative (open) loop optimal control methods à la Chow. The latter allows for the use of controls other than oil prices, like capital transfers to the developing countries and government expenditures. Both approaches yield interesting results. For example, for most plausible parameter assumptions, OPEC's optimal oil price is lower when economy feedbacks are considered than without them, and OPEC's desired oil price path is significantly higher than that preferred by the developed and non-OPEC developing countries.

These results are neither new nor particularly surprising. The models employed do, however, give one a much better feel for the most significant factors and relationships underlying these results. In fact, I now have a much better appreciation for the relationship between the classical depletable resource modeling approach and the newer control theoretic approaches. Of course, the latter may soon become part of the theory of depletable resources, and, in fact, this book may help promote that outcome.

Given these strengths, criticisms would seem almost uncalled for. However, I do have a few. First, the book is concerned primarily with optimal oil price policies in the intermediate-to-long term. Although a clever reduced-form fiscal policy response equation is in the model, no explicit financial sector modeling is done. Thus, aggregate supply and demand in the developed countries are both considered, but money does not matter because it is not included. How important this omission is depends on one's philosophy about how macroeconomy operates and on how interested one is in very short-run (say one to six or seven quarters) adjustments. Second, the weights placed on the various targets in the full optimal control formulation seem somewhat arbitrary. I realize that relative weights are really all that matter, but it is difficult to appreciate the results from the multitarget optimal control model presented in the book because the weights are referred to in absolute terms. Finally, although each chapter of the book has an excellent summary and conclusions sections, there is none for the book as a whole. The book brings together concepts drawn from a broad range of subjects—oil market analysis, depletable resource theory, optimal control theory, demand theory, production theory. I, therefore, was looking forward to seeing a grand synthesis at the end. Perhaps that awaits another book by this author. I am convinced he's up to it, but until then I recommend his current work to all serious students of energy economics.

John P. Weyant
Energy Modeling Forum
Stanford University