

BOOK REVIEWS

VAN DER LINDE, COBY. *Dynamic International Oil Markets: Oil Market Developments and Structure, 1860-1990*. (Dordrecht, Netherlands: Kluwer Academic Publishers, 1991). 224 pages.

The literature on the world oil industry and oil markets, by now quite extensive, contains examples of very divergent approaches. Among these are Daniel Yergin's historical-political perspective, Morris Adelman's exemplary use of economic analysis, and a host of econometric studies of oil supply and demand (many of them analyzed by the Energy Modeling Forum). To this plethora add the present monograph by van der Linde, which approaches the subject from still another viewpoint.

The author, a member of the faculty of the University of Leiden, Holland, uses as his point of departure the work of his mentor, H. W. de Jong, on dynamic market theory and dynamic concentration theory. This approach emphasizes the continuous interaction between markets and industry structure. Institutions are viewed as being in constant motion and are considered endogenous (internal) to the model, in contrast to the usual approach which treats them as exogenous (external). The general model views the growth process as falling into four phases: (1) introduction or innovation, (2) expansion or imitation, (3) maturity, and (4) stagnation. As applied to oil, the author identifies three distinct long-term cycles, each lasting about 40 years: the lamp oil cycle (1860-1900), the U.S. fuel cycle (1900-1940), and the international fuel cycle (1950-1990).

Each cycle exhibits the four growth phases, and these are associated with distinct market conditions and industry structures. In addition, of course, they have been shaped by well-known economic characteristics (e.g., heavy capital investment, high risks on the supply side, long lead times) which have led to over- or under-investment in crude or refining-marketing, with resulting "countercyclical" (opposing) behavior of upstream and downstream profit margins. All this has brought on, according to the author, increased competition in the expansion stage, greater concentration and cartelization in maturity, and vertical (and even horizontal) disintegration during periods of stagnation.

After developing his theory in Chapter 1, the author devotes two lengthy chapters to the statistical examination of market developments (consumption, production, prices, trade, etc.) in the U.S. and worldwide. This is followed by discussions of the development of Middle East oil, OPEC, and of the major companies. The author draws heavily on what is by now a rich fount of industry information and analysis, most of it well known to students of the industry. His contribution is his effort to cast the story into a conceptual framework with which most readers, especially non-Europeans, will not be familiar. In this, he is only partially successful. For example, it is not at all clear that his third cycle, which supposedly began in 1950, is now complete, given the current and prospective growth of oil demand in the LDCs. The "countercyclical" tendencies of the upstream and downstream sectors are, as he admits, far from perfect mirror images. And, although he claims to incorporate political as well as economic forces, neither the 1973-74 nor the 1970-80 price increases fit into his framework and are thus labeled "aberrations."

The book has other weaknesses. The organization is at times quite confusing. The 70 pages devoted to presentation and discussion of statistical trends (rates of change, market shares, ratios, etc.) surely are overkill and test the reader's endurance. Economic analysis is frequently inadequate or missing. What exactly does he mean by saying, on page 93, that "(T)he price has become more price elastic than in the 1970s...?" Where are the references to the literature on the reversibility of demand elasticities or, for that matter, to the pioneer demand studies of Lester Taylor, Robert Pindyck, and David Wood, among others? Where are the references to the literature on vertical integration of the Chicago School (George Stigler, Ronald Coase, and others)? Also disconcerting is the large number of spelling errors, given that the publisher has branches in London and Boston. All this does not mean that the determined reader will find nothing worthwhile in this book. Although the basic ideas have been around for a very long time (see, for example, Paul Frankel's *Essentials of Petroleum*, 1946), they are here cast in a historical-analytical framework with which many current energy analysts may not be acquainted. This alone may well justify the effort to work one's way through this volume.

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SCHIPPER, LEE AND STEPHEN MEYERS WITH R.B. HOWARTH AND R. STEINER, *Energy Efficiency and Human Activity: Past Trends, Future Prospects*. Cambridge Studies in Energy and the Environment. (Great Britain: Cambridge University Press, 1992). 385 pages.

The reader of this book, seeking facts, interpretation, and some sense of policy implications, will be rewarded to some extent in all three respects. But it is on the first and (with a few caveats) second counts for which the Schipper-Meyers volume can claim its primary virtue.

The authors have admirably assembled and organized data relevant to understanding evolving patterns of energy consumption growth in key world regions during the last two decades. Foremost attention is directed to OECD countries while the former East Bloc and developing nations (for which data are less meaningful and harder to come by) receive subsidiary emphasis—though their prospectively dominant role in future energy growth is clearly recognized. The central analytical construct employed is a decomposition of changes in final energy demand in terms of *activity levels* (e.g., value added in manufacturing or tonne-kilometers in freight transport), *structural change* (e.g., industry-mix shifts), and *energy intensity* per unit of given types of output or activity. The dissection is handled deftly and conducted at more disaggregated levels of detail than is typical in energy studies. Thus, selected household appliances and specific industry groups are singled out for particular scrutiny. Yet, aggregation of the underlying details also reveals some interesting findings, such as the following summary tabulation for the United States, West Germany and Japan.

Impacts of Changing Activity, Structure and Energy Intensity on Final Energy Use (% Changes 1973-88)

	United States	Japan	West Germany
Final Energy Use	3	15	3
Effect of Activity	39	54	21
Structure	7	1	14
Intensity	-24	-23	-23

Note: The multiplicative product of the components does not quite add to end-use energy change because of weighting reasons.

The historical trends (which, in part, the foregoing table encapsulates) account for seven chapters—well over half the book. For the most part, the authors' commentary on their findings are straightforward and, mercifully,

limited in the moralistic strictures Americans frequently encounter when being exhorted to emulate the energy-use practices of this or that country. Still, the innocent observation, for example, that Japan's auto fleet used about 30% less energy per kilometer driven than the U.S. might have deserved a word about the extent to which Japanese traffic congestion reinforces the disincentive effect of very high motor-fuel taxes.

Three ensuing chapters revolve around alternative scenarios ("trends," "moderate," "vigorous") of future energy consumption growth. With the historical framework as the springboard, these projections are, again, built up from particular energy-using processes and activities, rather than constructed via the familiar macroeconomic framework embodying income, relative prices, elasticities, and technological assumptions, among others. The analysis finds a large potential for future declines in overall energy intensity. However, as John Holdren reminds us in a thoughtful, 51-page "Prologue," even dramatic improvements in energy-use efficiency may not spare us the challenge of dealing with large-scale expansion of energy requirements in developing nations.

In moving from diagnosis to prescription, the authors' final two chapters revolve around issues of policies and programs to marry energy efficiency to sustainability—undeniably matters of great importance, but treated here in pedestrian and disappointing fashion. Instead of meeting the challenge of saying something not already represented in the copious literature on energy conservation strategies, what we have (with a nod to Claude Rains) is a roundup of the usual suspects—pricing to reflect externalities, R&D, information, efficiency standards, overcoming capital-market distortions, demand-side management—that could help narrow the gap between likely and desirable outcomes.

But maybe the authors shouldn't be blamed for failing to advance any new persuasive or imaginative ideas and policy recommendations. They aren't the first and won't be the last writers to point to the inhibiting effect of high implicit consumer discount rates which anyway aren't limited to people's energy-using behavior. They are right to point to some U.S. DSM programs as providing a useful directional nudge. But they are on questionable ground in suggesting that subsidizing conservation which would have occurred anyway does not figure as an economic welfare loss. And by embracing integrated resource programs and recent regulatory reforms in the U.S. utility industry, one cannot dismiss the possibility of competitively spurred *lower* electricity supply costs and encouragement of heightened consumption unless new externality costs impose an offsetting burden.

In any case, those concluding chapters suffer from somewhat tired nostrums (changes "in land-use planning can play a major role in reducing travel distances and reliance on the automobile") and much redundancy. Barriers to improving energy efficiency are discussed on p. 305 of Chapter 11 and again on

p. 341 of Chapter 12; similar duplication applies to treatment of energy pricing policies, financial incentives, utility programs, and the special problems of LDCs and the former East Bloc. And in ending with a chapter entitled "Energy and Human Activity: Steps Toward a Sustainable Future," the authors, invoking—in name rather than depth—the currently obligatory bow to sustainability, have overreached themselves, a shame considering the solid contributions in the earlier and main portion of the volume.

Tables, figures, and boxes are well presented. But their listing in the Table of Contents would have been a welcome touch.

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