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Barnett, Harold J. and Morse, Chandler, Scarcity and Growth: The Economics of Natural Resource Availability

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In this recent publication sponsored by Resources for the Future, authors Barnett and Morse undertake to formulate and empirically test hypotheses derived from classical assumptions of natural resource scarcity.

The study is divided into four parts. The first develops the models of economic growth implicit in the writings of Ricardo and Malthus. The underlying assumptions of resource (or land) scarcity are specified—assumptions the authors find reappearing in much of the literature that characterized the American Conservation Movement. In Part II familiar constructs of production economics (factor substitution functions and production expansion paths for resources, labor, and capital) are developed consistent with the two growth models. Part III develops and tests several sets of hypotheses derived from the Malthusian and Ricardian resource scarcity assumptions. The final part discusses the relevancy of these classical scarcity assumptions in light of the contemporary world. The scope of discussion is enlarged in this last part of the book to include several broad problem areas of natural resource development and management and to provide a sprinkling of caveats for natural resource policy.

This type of exposition and analysis is difficult when tied to so broad a theme as resource scarcity. In striving for continuity of argument, there is danger that the term is too narrowly interpreted when considering its earlier usage in the literature. The present study suffers from this and, in consequence, its thematic development appears somewhat contrived. Resource scarcity initially is developed as a theoretical abstract. Later it is assigned empirical relevance, and tests are devised to demonstrate the degree to which scarcity persisted for this country's resources from 1870 to the present. Finally, the significance of resource scarcity for policy purposes is developed. It is not surprising that some inconsistencies of definition and interpretation exist, and that some license is taken with earlier authors. Much of this is unavoidable, given the vehicle of analysis which was selected, but, nevertheless, it raises problems for the reader.

Malthus and Ricardo developed their notion of scarcity as a theoretical construct required to complete their models of economic growth. These models, in turn, were used to generate explanatory generalization about the behavior of
the economy at large. Their concern in this was not with natural resource policy, and their definitions were not pragmatic in this regard. Although one finds the theme of resource scarcity picked up by the American Conservation Movement, the main thrust of professional concern was not derived so much from Ricardo and Malthus as from the German economists of the mid-19th century, such as Knies, Schmoller, and the forester Fernow—who was an important influence in early resource economic thinking in this country. The emphasis of this group was on historical analysis and the functional role of social institutions, reflecting a basic concern with resource adjustment problems occasioned by technology and other factors affecting relative resource demands, rather than the fundamentalist scarcity of Malthus and Ricardo. These social scientists were directly concerned with policy problems. It was their interpretation of resource "scarcity" that was the real intellectual antecedent of the American Conservation Movement. The writings of economists in the American Movement—such as Ely and Hibbard—do not reflect a literal interpretation of the classical construct. Their primary concern was with resource policy as a device for facilitating those adjustments in factor combination called for by the times. Thus, while some of the more popular writings did reflect a literal interpretation of the classical scarcity construct—implicitly assuming it empirically valid—there were a number of authors of substance whose concern for resource policy was based on problems of adjusting resource use rather than theoretical formulations of scarcity.

The particular interpretation of resource scarcity which they adopt appears to undercut much of the authors' analytical edifice in the last part of their study. Not only are the scarcity hypotheses rejected on the basis of empirical evidence (with the important exception of the forestry sector), but we are told in the last chapters that a narrow interpretation of scarcity is somewhat beside the point because resource policy is concerned primarily with changes in resource demands and the technical conditions of production.

To be sure, the critical omission in the universe of both Malthus and Ricardo is the role of technology. This was included in the growth models of later economists—particularly in those of Marx. It would have been useful had the authors included the Marxian assumption about technology and its mitigating effect on resource scarcity. As indicated earlier, it was a recognition of technology which focused professional economic attention on problems of adjustments in resource use rather than on the spectre of scarcity.

The last portion of the book considers contemporary implications of resource scarcity under general chapter headings of Self-Generating Technology and Change and Natural Resources and the Quality of Life. A number of highly significant problems are broached in these chapters which in the reviewer's judgment warrant more thorough discussion and a closer linkage to the theme
of resource scarcity. Rather than merely diluting the impact of limited resource supply, the issues mentioned (which include the autonomy of technological change, population dynamics, deviations in market structure, and the adequacy of decision-making procedures) suggest broader criteria for assessing the natural resource environment. The classical assumptions are shown to be inappropriate, but the discussion does not suggest a more suitable framework to develop a positive basis for natural resource policy.

These shortcomings notwithstanding, the book is useful. The writing is clear, there is an imaginative use of graphics, and the data on natural resources compiled by Potter and Christy are put to good use. The book will be useful as reference reading for social science students concerned with natural resources.

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