of Ricardo's theory of value with Dmitriev's restatement in rigorous mathematical terms; it led both to input-output analysis and to contemporary mathematical economics in the Soviet Union. The second essay expounds Cournot's theory of competition and extends that analysis to derive a highly original corollary relying on the absence of forward markets in industrial goods. The final essay is an exposition of the theory of marginal utility, based on the Austrians to be sure, but also on the Italian, F. Galiani, who wrote in 1750.

The essays are breathtaking in their scope of scholarship and brilliance of thought; the editor and translator are commended for making them available in the English language. In contrast to many other treatises in mathematical economics, the publisher is to be commended as well; the text is meticulously edited and handsomely published.

For my taste, the essay on competition presents the newest and most elegant extension of traditional theory. Building on Cournot, Dmitriev criticizes Cournot's assumption that production and sales are instantaneously equal; in fact, he notes, producers willingly would join a tacit monopoly-like collusive pricing policy when the fear that other producers might jump in for quick profits is allayed. Their collusive alliance is enforced by excess stocks of goods or unused capacity; only those devices ensure that an attempt by one producer to increase sales will be countered instantly by increased goods from other producers. Both conditions are nonproductive increments to price. In a brief conclusion, Dmitriev adds advertising to this list. The addition typifies the pungent and undated freshness which Dmitriev brings to the study of competitive markets even today.

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SOVIET POST-WAR ECONOMIC DEVELOPMENT. By *Abram Bergson.* Wicksell Lecture Series, 1974. Stockholm: Almqvist & Wiksell International, 1974. 87 pp. Paper.

The subject of productivity growth in the Soviet economy has been enriched by Professor Abram Bergson for almost two decades. It is extended in these prestigious Wicksell Lectures to an analysis of comparative growth performance during 1955–70 in several Western countries. The lectures are rich in analytical insights, a meticulous handling of a mass of data spanning several countries, and carefully-drawn conclusions.

The task that Bergson sets out to accomplish is formidable. He seeks to determine how the Soviet economy, characterized by public ownership, centralist bureaucratic planning, and the strategy of economic growth under self-sufficiency, performs in relation to the market economies of the United States, Japan, and several Western European countries. He concludes that Soviet economic performance in terms of output per worker and consumption per capita is "impressive but not imposing."

Why should one expect Soviet economic performance to be "imposing"? The Bergsonian analytical framework, stipulated in terms of "advantages of backwardness," indicates that for Western countries the more advanced the economy, the less rapidly it grows, and vice versa. The Soviet Union, therefore, which in terms of output per worker in 1960 was at the same "stage of economic backwardness" as Italy and Japan, should grow at least as rapidly as those countries. By the same token, it should grow faster than the United States, which is economically more advanced and hence grows more slowly.

Actually, Soviet productivity growth in terms of real output per worker is outpaced by both Italy and Japan. Moreover, this undistinguished growth performance is relatively costly because capital stock per worker grows faster than the Italian and the Japanese; Soviet "technical progress" is also lower. As for consumption per capita, it too grows less rapidly than output per capita, and thereby indicates a departure from the balanced growth pattern in the majority of Western countries. Thus, growth is revealed to be costly in terms of an increase over time in capital inputs per unit of output.

Bergson's conclusions about Soviet economic performance are plausible but they raise several methodological issues. For example, Bergson adopts output per worker (and alternatively, relative employment in agriculture) as an index of the "stage of economic advance," in order to compare Soviet performance with "like" Western countries. These measures clearly exclude important cultural, historical, and institutional determinants of static efficiency and growth, as is suggested by the contrasts between Japan and Italy which are bracketed together by this index. Furthermore, Bergson's application of Gerschenkron's framework of "advantages of backwardness" seems to have limited application to the Soviet Union which, for reasons not entirely of its own preference, could not always take advantage of its "backwardness" in terms of access to technology, foreign capital inflow, credits, and so forth. Bergson is doubtless aware of the objections to his methodology, but the reader may well consider them to be sufficiently strong to throw doubt on Bergson's conclusions regarding Soviet economic performance.

Perhaps the one important point on which Bergson's analysis is open to question is his use of the Cobb-Douglas production function, as estimated by using competitive relations, for assessing Soviet "technical change." Recent research, by Weitzman and Desai, on estimating Soviet production functions and technical progress is founded on the recognition that competitive assumptions are not suitable for analysis of the Soviet economy. They use, therefore, nonlinear estimation procedures, thus circumventing the need for these assumptions. The results, reported in papers in the *American Economic Review* (1970 and 1976), indicate strongly that imputed factor shares are significantly different from actual shares and that Bergson's procedure, therefore, would introduce serious errors into the analysis.

In conclusion, the lectures provide an expert's view of Soviet comparative growth performance. They can be read with profit by comparative systems specialists, professional economists, and intelligent laymen alike.

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THE MODERNIZATION OF JAPAN AND RUSSIA: A COMPARATIVE STUDY. By *Cyril E. Black, Marius B. Jansen, Herbert S. Levine, Marion J. Levy, Jr., Henry Rosovsky, Gilbert Rozman, Henry D. Smith, II,* and *S. Frederick Starr.* New York and London: The Free Press and Collier Macmillan, 1975. xiv, 386 pp. $17.95.

This is an interesting experiment in the use of history for the exploration of the meaning of "modernization." The framework adopted for this book fits Japan smoothly, because Japan has been a standard topic in the discussion of modernization. But its application to Russia and the USSR ("Russia" for both hereinafter) should surely raise a few eyebrows among those who have dealt with this country in the perspective of "comparative systems," according it the honor of parity with the United States as the basis of an alternative socioeconomic system, "socialism" as against "capitalism."