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INVESTMENT THEORY AND FOREST MANAGEMENT PLANNING

By

BARNEY DOWDLE

Assistant Professor of Forest Economics

University of Washington

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INTRODUCTION

SIGNIFICANT progress has been made in recent years in adapting the principles of sustained-yield management to forest lands. As virgin timber stands become exhausted, however, and demand for wood products continues to increase, wood-using industries will become even more dependent on timber produced from forest lands managed on a continuous and systematic basis. Since forest land management is primarily an investment undertaking, it is not surprising that these trends have resulted in increased attention being focused on forestry investment analysis. Thus, the concepts of "financial maturity" (Duerr, 1956), "forestry programming" (Stoltenberg, 1959), and "capital budgeting" (Fedkiw, 1960) have been recently introduced into the literature as possible methods for rating forestry investment alternatives.

A common characteristic of these recent theoretical proposals, as with the "soil rent" doctrine that has been widely discussed in forestry literature for nearly a century, is the use of maximum discounted net worth as the guiding rule in making forestry investments. The forestry investor is envisaged as ranking the investment opportunities available to him on the basis of their prospective profitability, and allocating his investment funds accordingly. Nonforestry investment opportunities are included in making these comparisons.

The practical and technical difficulties in applying the concept of maximum discounted net worth to the allocation of investment funds in forest management have been generally recognized. In particular, the time element in timber production necessitates the use of price and demand projections many years into the future. Estimates based on these projections are thus very uncertain. In addition, the heterogeneity of forest land productivity and the species structure of many timber stands complicate the task of predicting physical yields of timber crops under various forest management systems. As a consequence, individual judgment will often play a more important role in making a forestry investment decision than discounted net worth calculations.

While ranking discounted-net-worth estimates may provide the best single criterion for comparing forestry investment alternatives, it does not provide an unequivocal investment guide to the forest land manager. Uncertainty of future economic conditions, variability in physical-yield estimates, and other informa-