Abstract

In recent work [1, 2], the authors frame the (Ramseyian) economics of forestry in the undiscounted setting of upper semicontinuous benefit (felicity) functions that are required to be price-supported at the yields of a golden-rule forest configuration, but not necessarily to be concave. Through a non-interiority condition on the convex hull of the zeroes of a resulting “discrepancy function,” they present a unified theory, one for which robust asymptotic convergence and classical turnpike theorems can be obtained. These results are of particular interest for the general theory of intertemporal resource allocation in that they pertain to a transitional production set which does not satisfy the assumptions of inaction and free disposal.

In this paper, we trace out the ramifications of this work for the discounted setting, and thereby present a generalized theory that covers the economics of the Mitra-Wan tree farm under one rubric that moves seamlessly between the discounted and undiscounted cases, and thereby gives additional insight into both. We present results that generalize theorems of Mitra-Wan [5] and Salo-Tahvonen [6, 7], and our theorems also have a direct bearing for McKenzie’s “neighborhood turnpike theorem,” as presented in [3, 4] for the Gale-MacKenzie model.

Keywords Forest management, discount factor, optimal programs, value-loss, upper semicontinuity, discrepancy function, non-interiority, existence, asymptotic convergence, neighborhood turnpike theorem

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References


