

Recursive H-J-B Equation

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Abstract

The objective of the paper is two-fold. First, we develop the recursive preferences defined over a set of consumption paths in a continuous-time framework along the research program initiated by Epstein (1987). We invoke an analogy to the recursive preferences in a discrete-time framework and then use a differentiability assumption in the sense of Fréchet. Second, we propose a totally new assumption of biconvergence for an application of dynamic programming technique in continuous-time optimization problems, which is a continuous-time counterpart of the assumption with the same name for discrete-time optimization problems developed by Streufert (1990). In particular, we show that the value function solves the Hamilton-Jacobi-Bellman (H-J-B) equation for a continuous-time optimization problems with recursive preferences.