Adv. Math. Econ. 6, 1-38 (2004)

Advances in MATHEMATICAL ECONOMICS

On the fiber product of Young measures with application to a control problem with measures

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Received: April 11, 2003
Revised: June 19, 2003

JEL classification: C61, C73

Mathematical Subject Classification (2000): 28 A 33, 46 N 10, 49 L 25

Abstract. This paper studies, in the context of separable metric spaces, the stable convergence of the fiber product for Young measures with applications to a control problem governed by an ordinary differential equations where the controls are Young measures. Essentially we study some variational properties of the value functions and the existence of quasi-saddle points of these functions which occurs in this dynamic control problem, and also their link with the viscosity solution of the associated Hamilton–Jacobi–Bellman equation.

Key words: Young measure, relaxed control, fiber product, dynamic programming, viscosity solution