Solutions of the Average Cost Optimality Equation for Finite Markov Decision Chains: Risk-Sensitive and Risk-Neutral Criteria*

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Abstract. This work is concerned with controlled Markov chains with finite state and action spaces. It is assumed that the decision maker has an arbitrary but constant risk sensitivity coefficient, and that the performance of a control policy is measured by the long-run average cost criterion. Within this framework, the existence of solutions of the corresponding risk-sensitive optimality equation for arbitrary cost function is characterized in terms of communication properties of the transition law.

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