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**Average cost Markov control processes: Stability with respect to the Kantorovich metric.**
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Perturbations of a discrete-time Markov control process are studied on a general state space. The amount of perturbation is measured by means of the Kantorovich distance. It is assumed that an average (per unit of time on the infinite horizon) optimal control policy can be found for the perturbed (supposedly known) process, and that it is used to control the original (unperturbed) process. The one-stage cost is not assumed to be bounded. Under Lyapunov-like conditions, the authors find upper bounds for the average cost excess when such an approximation is used in place of the optimal (unknown) control policy. As an application of the inequalities found, the approximation by relevant empirical distributions are considered. The results are illustrated by estimating the stability of a simple autoregressive control process. Some examples of unstable processes are also provided.

Reviewer: Pavel Gapeev (London)

**MSC:**

60J05 Discrete-time Markov processes on general state spaces
93E10 Estimation and detection in stochastic control theory
90C40 Markov and semi-Markov decision processes
93D99 Stability of control systems



**Keywords:**

discrete-time Markov control process; average cost; contraction; stability inequality; Kantorovich metric

**Full Text:** DOI

**References:**

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paper as accurately as possible without claiming the completeness or perfect precision of the matching.