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Isabelle Kemajou-Brown* (isakema@gmail.com). *Brief history of optimal control theory and some recent developments.*

Optimal control theory has been very well developed in the past years out of the need to derive a control policy such that a certain optimality criterion is reached. After a brief introduction on the starting point and evolution of this topic, we discuss some formulations in both deterministic and stochastic cases. We present the main approaches of solving optimal control problems. We formulate a stochastic control problem under regime switching model using the maximum principle approach. The shadow price of a resource with some specific consideration is the key to understanding the economic interpretation of optimal control theory. We also discuss an example of connection between optimal control and shadow price. (Received September 20, 2015)