# Ramsey's Economic Growth Model
# — Its Dual —

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**Abstract.** This paper introduces a dual of economic growth model. We associates the (primal) Ramsey model with its dual one through maximum transform. Both primal and dual models are solved through dynamic programming. We show in finite-stage processes a square root model, a nonstationary model and a discount model. The nonstationary model has an analytic solution. We also consider an infinite-stage process with a discount facter less than one. It is shown that the dual model has the same discount factor as the primal. The optimal solution (value function and policy) of primal and dual models are characterized through primal and dual Bellman equations, respectively.

**JEL classification** : C61, O41

**Mathematics Subject Classification (2010)**: 49L20, 49N15, 90C25, 90C39, 91B62

**Key words**: dyanmic programming, primal-dual, Ramsey model, Bellman equation, maximum transform, square root model, analytic solution