

---

**ALI LAZRAK**, University of British Columbia

*Perfect competition among generations: growth theory under time*

This paper characterizes differentiable subgame perfect equilibria in a continuous time intertemporal decision optimization problem with non-constant discounting. It is assumed that successive decision-makers are in a situation of perfect competition, so that each of them takes the strategy of future generations as given. We show that equilibrium strategies are characterized by a value function, which must satisfy a certain equation. The equilibrium equation takes two different forms, one of which is reminiscent of the classical Hamilton–Jacobi–Bellman equation of optimal control, but with a non-local term. We give a local existence result, and several examples of equilibria, and we conclude that non constant discount rates generate an indeterminacy of the steady state in the Ramsey growth model. Despite its indeterminacy, the steady state level is robust to small deviations from constant discount rates.

Co-author: Ivar Ekeland.