Titre : Recycling of an exhaustible resource and Hotelling's rule.

Résumé : We examine the best extraction strategies for the provider of an exhaustible resource that can be recycled. In a two-period model of resource extraction, the extractor may face competition in the last period from a recycler that produces a perfect substitute of the virgin resource. Recycling is costly and entry involves fixed costs. Our results highlight the modifications introduced in the Hotelling rule as a result of the possibility of recycling. As a benchmark, the extractor and the recycler are integrated into a single entity that maximizes welfare. The preliminary outcome is that recycling accelerates the depletion of the resource independently from strategic considerations.

When the extractor and the recycler are separate entities, the extractor's pre-entry decisions influence the recycler's view as to the profitability of entry. The first-period choice of extraction crucially depends on the relative weight of the extractor's revenue in the objective function. The outcomes of the model follow Bain's classification (1956) on entry possibilities: the extractor accommodates, blockades or deters the recycler's entry.