Conservation Contracts for Exhaustible Resources

Nils Chr. Framstad Bård Harstad

University of Oslo
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Abstract

This paper studies how to best incentivize owners to conserve rather than deplete exhaustible resources. This is an important issue when it comes to forest conservation agreements, but it may also become important for other environmental problems, such as climate change. We present a dynamic model where each resource owner benefits from extracting and selling the resource over time. A third party, or principal, is harmed by the extracted amount or she benefits from conservation. The principal can set up payment schedules that incentivize the owners to conserve. We show that the best contract induces the smallest resource stocks to be depleted first, while the largest stock will be extracted from later. To little is conserved permanently and the speed of extraction is too high. These three results are reversed if and only if it is very costly to protect the resource. By comparison, the first best would require that more is conserved, and that extraction begins where the extraction cost is lowest. The difference to the first best is magnified if some buyers boycott the products.