

# Optimal management of stock pollution when discount rates are endogenous

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This paper investigates endogenous discounting within the framework of a stock externality, 'global warming'. This topic is of interest, at least since the Stern report and the ensuing public and academic debate have made clear how crucial discounting is for evaluating anti-global warming measures.

Our basic assumption is that discounting decreases as the damage increases, i.e., decision makers become more patient when facing the environmental damages following their high consumption levels. This avoids time inconsistency, a pitfall when using hyperbolic discounting, but can lead to quite different and sometimes counterintuitive behavior in comparison to standard exogenous discounting: an endogenous discount rate, albeit always smaller than the exogenous one, (i) can nevertheless imply high steady state damages; (ii) can lead to multiple steady states.

Since endogenous discounting makes the somehow far-fetched assumption that the decision maker realizes how his future rate of discount changes, the alternative of 'myopic' discounting is also considered.