Intergenerational Experimentation and Catastrophic Risk*

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Abstract

I study an intergenerational game in which each generation experiments on a risky technology that provides private benefits, but may also cause a temporary catastrophe. I find a folk-theorem-type result on which there is a continuum of equilibria. Compared to the socially optimal level, some equilibria exhibit too much, while others too little, experimentation. The reason is that the payoff externality causes preemptive experimentation, while the informational externality leads to more caution. Remarkably, for a particular temporal discount rate, there exists an optimal equilibrium in which the behavior of two-period-lived agents align with that of an infinitely-lived social planner. In a model with a political process, unequal political power, biased towards the young, supports an optimal equilibrium most often. Extensions include finite horizon, irreversible catastrophes, and risk-aversion.

Keywords: experimentation, intergenerational equity, catastrophes, tragedy of the commons

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