

# Irreversible Investment in Technology and the Dynamics of Public Good Provision

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## Abstract

We analyze a model of public good provision and technology investment when two parties alternate in power stochastically. In each period, the incumbent decides how much public good to provide and how much to invest in a technology that lowers the cost of public good provision in the future. The two parties place differential weights on the public good (party  $H$  a higher weight and  $L$  a lower weight), and this difference is taken to be the index of polarization.

We obtain the following results in Markov Perfect equilibrium in the infinite-horizon game. (i) When polarization is low, steady state distribution is invariant to the degree of reversibility of the investment. When polarization is high, party  $H$  invests more in technology and both parties provide more public good in steady state when investment is irreversible than when reversible. (ii) Higher power turnover can result in higher levels of technology stock and more public good provision, improving welfare for both parties. (iii) Under high power turnover, as parties get more polarized, the expected technology stock and provision of public good in steady state first fall, then rise, and fall again.

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