We consider the effects of global sunspot fluctuations in a growth model with externalities, where the Pareto-inferior steady state (poverty trap) is indeterminate. A global (not restricted to a small neighborhood of the steady state) sunspot can move the economy from the poverty trap's region of attraction into the region of attraction of a Pareto-superior steady state, even if the sunspot variable is modeled as a continuous sample path Wiener process. Government can influence the probability of sunspot-induced escape from the trap by shifting the boundary between different regions of attraction through changes in the parameters of the tax regime. We also discuss the welfare consequences of these policy interventions. The model considered here belongs to a class of models, related to the model of Benhabib and Farmer (J. Econ. Theory 63(1) (1994) 19), which could be transformed into a two-dimensional system of Lotka-Volterra differential equations. This allows complete characterization of the global dynamics of the deterministic and stochastic versions of the model. In particular, in this class of models limit cycles do not exist, and exact regions of attraction of indeterminate steady states can be obtained. We study the stochastic stability of the poverty trap steady state subject to sunspot fluctuations, and demonstrate an approximate method of estimating escape probability as a function of initial conditions and the model's parameters.