

# **On the Environmental Kuznets Curve: A Real Options Approach**

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Previous papers and empirical research suggest that some pollutants follow inverse-U-shaped patterns relative to countries' incomes, a relationship that has been called an 'environmental Kuznets curve'. This paper presents a simple explanation for the inverse-U-shaped pattern using a real options model. That is, assuming that countries execute optimally the switching options for stopping and restarting pollution temporarily, the state probability of the pollution level is calculated using the theory of alternating renewal processes. The inverse-U-shaped pattern then appears as the expected pollution level in time.

Keywords: Environmental Kuznets curve, Real option, Alternating Renewal Process.