

# Modeling semicontinuous IT patent values by a mixture of Bayesian two-part models\*

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## Abstract

In this paper, we develop a finite mixture of Bayesian two-part models for semicontinuous panel data. We are motivated by the observation that the patent values in the information technology industry have a large proportion of zeros in our 11-year longitudinal study. The mixture structure enables us to investigate the difference in productivity of research and development investments among firms. We implement a Markov chain Monte Carlo procedure to simulate the joint posterior distribution. We also present a simulation study to further demonstrate the efficiency of the proposed MCMC method.

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