Department of Statistics

MASTER'S THESIS PRESENTATION

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Modeling the Distribution of Flight Departure Delays

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ABSTRACT

In this paper we develop models to estimate the distribution of flight departure delays, with a focus on modeling extreme departure delays. The overall departure delay distribution is modeled using a generalized linear model. Next, in order to capture the extreme departure delays we use two different approaches. First, the generalized linear model is adjusted with a small term to increase the probability of extreme delays. Second, we use a peak-over-threshold approach where departure delays exceeding a threshold are assumed to follow a generalized Pareto distribution. The later approach incorporates covariates such as the scheduled time of departure and origin airport of the flight as covariates. The peak-over-threshold approach is also extended to allow a covariate dependent threshold. We use flight data from the United States Department of Transportation for 2010.

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