



The University of Chicago
Department of Statistics
Ph.D. Seminar

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Trade Classification and Nearly-Gamma Random Variables

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110 Eckhart Hall, 5734 S. University Avenue**

ABSTRACT

For a number of financial problems, modeling delays plays an important role.

I develop asymptotic expansions for a sum of exponential distributions which may be non-identically-distributed and correlated. These expansions are applied to classifying trades.

I propose a generalized linear mixed model for the conditional probability a trade was buyer-initiated. The model encompasses the three major competing methods for classifying trades; uses the asymptotic expansions I develop to better estimate the quotes prevailing when a stock market trade occurred; and allows for buys/sells to be autocorrelated and cross-correlated among all stocks and within a sector.

Finally, this work hints at reviving and extending a subset of nearly-forgotten time series models. Randomly-delayed autoregressive (RaDAR) models form a subclass of distributed lag models.