

MASTER'S SEMINAR ANNOUNCEMENT  
Department of Statistics

## **"A Bayesian Linear Modeling Investigation of eBay Seller's Realized Profit"**

Wednesday, August 30, 2004, 9:30 am  
Eckhart Hall, Room 110, 5734 S. University Avenue

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### **ABSTRACT**

This paper investigates the way eBay sellers' realized profit varies with a series of latent predictors. Bayesian methods are used in purpose of taking its modeling flexibility and generating improved assessment on each predictor's impact on realized profit by considering model uncertainty. The improved assessments of explanatory variables' impacts are realized by incorporating BMA (Bayesian model averaging) technique in the model selection process. Instead of assuming one model is true and test other models against this benchmark, the BMA technique considers a universe of possible models; the assessment is evaluated by combining, in a Bayesian sense, each model's uncertainty and its corresponding output regarding the assessment interested.

The first part of this paper offers a brief introduction to Bayesian linear modeling and Bayesian Model Averaging methods; the second part applies these methods to the eBay seller data. Two BMA assessments on coefficients of explanatory variables are conducted; By assuming t-distributed error (with unknown degree of freedom) are more appropriate in modeling the realized profit, the first assessments are achieved via using an algorithm similar to MC3 (Markov Chain Monte Carlo Model Composition). The other is conducted by means of an approximation method focusing on BIC (Bayesian Information Criterion). Results of assessments are compared and the implications for eBay sellers are discussed.