Stochastic Frontier Models: Measuring Efficiency in Cross-Sectional Data

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The abstract: This presentation covers the core ideas of Stochastic Frontier Models (SFMs) for cross-sectional data. SFMs separate deviations from maximum possible output into random noise and inefficiency, allowing analysts to estimate production efficiency across units. The discussion includes concepts such as technical efficiency, the stochastic production frontier, and common production functions, along with two estimation methods: Corrected OLS and Maximum Likelihood Estimation. It concludes with a brief overview of how copulas are used to model dependence between inefficiency and noise, improving the accuracy of efficiency measurement. Extensions of classical SFMs for efficiency analysis are discussed.