

R. CLIFTON BAILEY
STATISTICS SEMINAR SERIES 2016-2017

**A BROAD FRAMEWORK FOR JOINT MODELLING, IN VIEW OF
SMALL, VERY LARGE, AND VARIABLE-SIZE STUDIES**

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4000 University Drive, Fairfax, VA 22030

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Abstract:

We consider a number of data settings where the use of standard maximum likelihood or other estimation method is complicated for a number of reasons: data structures are complex, there are very large data streams, in reverse there are very small trials (like in orphan diseases), or there are non-standard design features (sequential trials, missing data, clustered data with variable size, etc.). The use of alternatives to maximum likelihood are explored, with particular emphasis on pseudo-likelihood, split-sample methods, and even closed-form estimators in settings where one would not expect them. Specific attention is devoted to the computational feasibility of the proposed methods. All settings are illustrated using real-life examples.

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