

# BAYESIAN LINEAR PREDICTION IN FINITE POPULATIONS

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**Abstract.** In this paper, Bayesian linear prediction of the total of a finite population is considered in situations where the observation error variance is parameter dependent. Connections with least squares prediction (Royall (1976, *J. Amer. Statist. Assoc.*, **71**, 657-664)) in mixed linear models (Theil (1971, *Principles of Econometrics*, Wiley, New York)), are established. Extensions to the case of dynamic (state dependent) superpopulation models are also proposed.

*Key words and phrases:* Bayes linear prediction, parameter dependent error variance, mixed linear model, dynamic superpopulation model.