Linear prediction sufficiency for new observations in the general Gauss–Markov model

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Abstract

We consider the prediction of new observations in a general Gauss–Markov model. We state the fundamental equation of the best linear unbiased prediction, BLUP, and consider some properties of the BLUP. Particularly, we focus on such linear statistics, which preserve enough information for obtaining the BLUP of new observations as a linear function of them. We call such statistics linearly prediction sufficient for new observations, and introduce some equivalent characterizations for this new concept.

Keywords

Gauss–Markov model, Linear prediction, Linear sufficiency, Linear prediction sufficiency, BLUE, BLUP, Fundamental equations of the best linear unbiased prediction.

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