

1. Record Nr.	UNINA9910647774803321
Autore	Sugasawa Shonosuke
Titolo	Mixed-Effects Models and Small Area Estimation / / by Shonosuke Sugasawa, Tatsuya Kubokawa
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	9789811994869 9811994862
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (127 pages)
Collana	JSS Research Series in Statistics, , 2364-0065
Disciplina	519.5
Soggetti	Statistics Applied Statistics Statistical Theory and Methods Bayesian Inference Bayesian Network Models multinivell (Estadística) Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- General Mixed-Effects Models and BLUP -- Measuring Uncertainty of Predictors -- Basic mixed-effects Models for Small Area Estimation -- Hypothesis Tests and Variable Selection -- Advanced Theory of Basic Small Area Models -- Small Area Models for Non-normal Response Variables -- Extensions of Basic Small Area Models.
Sommario/riassunto	This book provides a self-contained introduction of mixed-effects models and small area estimation techniques. In particular, it focuses on both introducing classical theory and reviewing the latest methods. First, basic issues of mixed-effects models, such as parameter estimation, random effects prediction, variable selection, and asymptotic theory, are introduced. Standard mixed-effects models used in small area estimation, known as the Fay-Herriot model and the nested error regression model, are then introduced. Both frequentist and Bayesian approaches are given to compute predictors of small area parameters of interest. For measuring uncertainty of the predictors, several methods to calculate mean squared errors and confidence

intervals are discussed. Various advanced approaches using mixed-effects models are introduced, from frequentist to Bayesian approaches. This book is helpful for researchers and graduate students in fields requiring data analysis skills as well as in mathematical statistics.
