

Introduction

This book is based on a collection of my lecture notes used for my teaching of regression modeling to Ph.D. candidates in the Marshall School of Business and the Political Science Department, University of Southern California, from 2002 to 2004.

During my re-writing my lecture notes for this book, I have a clear goal that is to make this book as a friendly and step-by-step model-building guide to anyone who plans to use regression to conduct some high quality empirical research. In other words, this book is not written for people who just want to think about or to talk about regression modeling. The book is for these students and scholars who need to use regression to analyze some real data and to produce some high quality research reports.

To avoid some of the wide spread confusion in our empirical research field, a RM4Es framework has been used to summarize all the main concepts and methods of regression modeling. To state briefly, RM4Es consists of (e1) equations for model representations, (e2) estimation methods for coefficients calculation, (e3) evaluation methods for model assessment, and (e4) explanation for results interpretations. Feedback from my teaching has continuously confirmed the RM4Es framework is indeed a very effective tool in helping students to gain a clear understanding of regression modeling.

Throughout the book, many real research examples have been used to demonstrate all the important regression modeling techniques presented in this book and to keep students updated of the most current applications. Many of these examples are taken from articles published in leading journals such as American Economic Review and American Political Science Review.

Proper computing is always an important part of any high quality regression-modeling project. For this book, we have selected SPSS and R as our computing tools, because SPSS is easy to use and the powerful R is FREE. Step by step SPSS or R implementation of all the important ideas and techniques used in this book are included either in the book content or in the appendix. By using these SPSS programs together with a few datasets included in the book, our readers should be able to test all the important regression techniques and methods to ensure a full mastering of the modern regression modeling covered in this book.

This book may be used as a textbook for a graduate seminar course or as a training manual for some intensive sessions. Students who completed the course or training should be able to use SPSS or R to analyze their own datasets to produce high quality regression models.