

# Preface

In late spring 2013, Prof. Camille Price invited me to write a book for the prestigious Operations Research and Management Science Series, published by Springer and edited by Professor Frederick Hillier. I still clearly remember the intense meeting at the 2013 INFORMS conference in Minneapolis, in which the plan of the book was discussed with professors Hillier and Price, and the Springer team, with Matthew Amboy, Christine Crigler, and Neil Levine. I heartily thank all of them for the support throughout the writing of this manuscript, which, as the reader may imagine, took longer than expected.

This monograph is intended as an expository introduction to the methodology of sensitivity analysis of model output. It is primarily directed to students, investigators, and researchers that are familiar with mathematical models but are less familiar with the techniques for performing their sensitivity analysis. At the same time, the monograph does not aim to offer a review of all possible sensitivity analysis methods. A variety of sensitivity methods are available. Some of these methods answer questions which are model-specific, while some other methods are more general and apply to large families of models. The methods that we present here belong mainly to this second class of techniques. Nonetheless, the main goal of the paper is to raise the awareness of the importance of sensitivity analysis, as it plays a crucial role in the use of decision-support models. Performing sensitivity analysis rigorously allows analysts and decision makers to obtain an understanding of their model and insights from the model that would otherwise go lost.

I am extremely grateful and much in debt with all co-authors with which I have had the privilege to work during my career. My interest in sensitivity analysis initiates during my Ph.D. at MIT, with my advisor George E. Apostolakis. We started analyzing the important class of reliability importance measures and then moved on to global sensitivity analysis methods. Since then, I have had the privilege of working with several co-authors and friends. Each of them has contributed in broadening and enriching my view of the methods and problems of my research field. I will thank them in alphabetical order, hoping not to forget any of them: Hananeh Aliee, George Apostolakis, Manel Baucells, Francesca Beccacece, Valentina Bosetti, Greg Buzzard, William Castaings, Veronica Cappelli, Carmelo

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