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Jitesh J. Thakkar

Structural Equation Modelling

Application for Research and Practice
(with AMOS and R)



Springer

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*Dedicated to
my guru
Prof. S. G. Deshmukh*

Preface

Structural Equation Modelling (SEM) is a multivariate quantitative technique employed to describe the relationships among observed variables. The technique helps the researcher to test or validate a theoretical model for theory testing and extension. Typically, the interest of a researcher is to investigate the constructs emerging out of sets of variable and how these constructs are related to each other. For example, a sales manager might be interested to investigate a phenomenon that behaviour and discipline of salesperson have a direct influence on sales volume. Similarly, a researcher may hypothesize that the overall fitness of the player influences his/her performance in the sports. An oncologist might be interested to verify that a too much intact of protein leads to breast cancer in female. It is the preliminary understanding of the researcher that in some way the sets of variables that define the constructs are related in a certain way. As a result, the researcher wants to verify that to what extent the hypothesized theoretical model is adequate for the sample data. On verification of this, the researcher gets exposed to two options: (i) if the hypothesized theoretical model is supported by the sample data, then a researcher can incorporate more phenomena in the basic model and attempt to investigate more complex structure; (ii) if the theoretical model is not adequately supported by the data, then a researcher should either modify the basic model or develop an alternative model for testing. SEM enables the researcher to indulge into a deeper inquiry through a process of scientific hypothesis testing and extend the present body of knowledge by discovering complex relationships among constructs. This book provides a comprehensive learning on SEM for the academic and industry researchers. The key features of the book are:

- A comprehensive book for researchers and industry professionals
- Conceptual and mathematical understanding of SEM
- Illustrative step-by-step applications of SEM with AMOS, SPSS and R software programs

- Summary of research applications of SEM in operations management, psychology, humanities, human resources, organizational behaviour, marketing
- Glossary
- Important video links on SEM
- Frequently asked questions on use of SEM.

Kharagpur, India
February 2020

Dr. Jitesh J. Thakkar

Acknowledgements

It gives me immense pleasure to deliver this book on *Structural Equation Modelling* to students. This book will benefit students/researchers in engineering, management and social science field. The field of structural equation modelling has received the contributions from many scholars; hence, these individuals and scholars have contributed to the development of this book.

The discussion surrounding this topic and growing research applications of SEM has helped shape this book. I have always received inspiration and energy for executing academic projects from my teacher and guru Prof. S. G. Deshmukh. I express my deep gratitude for his valuable direction and inputs without which this book would not have attained its present form, in both content and presentation. He has been a supportive mentor, and it is with his help that I have achieved both professional and personal successes.

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My father, Jayprakashbhai Thakkar, and mother, Ushaben Thakkar, have provided a constant moral support and motivation for this work. I deeply express my love and affection for my wife, Ameer, daughter, Prachi, and son, Harshit, for giving me freedom and moral support for the completion of this book.

Kharagpur, India
February 2020

Dr. Jitesh J. Thakkar

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