
Foreword

The year 2013 was proclaimed as the International Year of Statistics (<http://www.statistics2013.org>). To many, statistics is about computing averages and proportions on relatively small sets and tables of numbers. But nowadays data from a variety of sources routinely come in many shapes and forms, and in larger quantities than ever before. “Big data” consists of numbers, vectors, curves, text, images, etc.

Extracting useful information from the surrounding noise is what statistical science is all about. Statistical methodology is ever more sophisticated — and exciting — and its application to a vast number of areas, from health science and genetics to fisheries, climate change, and finance, has far-reaching consequences in our lives. Moreover, unbeknownst to many, Canada has been for a long time — and remains — a leader in statistical research.

To help both general readers and users of statistics better appreciate its scope and importance, the Statistical Society of Canada has commissioned this book of expository chapters, written by leading Canadian researchers and showing “statistics in action.” What you have in hand is the result of this effort. It is hoped that it will give you a glimpse of the excitement, but also of the importance, of statistics at the beginning of the twenty-first century.

Having a good idea is one thing, but leading it to fruition requires more. We are indebted to Jerry Lawless for taking the lead and editing this book. We are also grateful to all the authors who have worked hard at making their research accessible to a much larger public than usual. Thanks are due to Brian Allen for his help in advertising and marketing the final product, and to Rob Calver, senior editor at Taylor & Francis, for his support. Finally, we would like to express our sincere thanks to Christian Genest, who served as managing editor for this volume, and who expertly dealt with the production of the final manuscript, a task which took him many, many hours.

In the spirit of the International Year of Statistics, this book is intended to help increase public awareness of the importance of statistics in all aspects of human life and society. In support of this objective, its contents are being made freely available at <http://www.ssc.ca/statistics-in-action>, with the publisher’s authorization. Color versions of some of the figures can also be found there. I wish you all a stimulating time reading this book!

Christian Léger, PhD, PStat
2012–13 President of the Statistical Society of Canada

About the SSC

The Statistical Society of Canada (in French: Société statistique du Canada) is the main professional organization for statisticians and related scientists in Canada. Founded in Montréal in 1972, the SSC currently has over 1100 members working in academia, government, and the private sector.

The mission of the SSC is to promote the use and development of statistics and probability. Its objectives are to make the general public aware of the value of statistical thought, the importance of this science, and the contribution of statisticians to Canadian society; to ensure that decisions that could have a major impact on Canadian society are based on relevant data, interpreted properly using statistics; to promote the pursuit of excellence in training and statistical practice in Canada; to encourage improvements in statistical methodology; to maintain a sense of belonging within the profession, and to promote dialogue among theoreticians and practitioners of statistics.

In partial fulfillment of its mission, the SSC each year organizes a scientific meeting attended by over 500 participants. It maintains a website at <http://www.ssc.ca> and publishes a bilingual quarterly newsletter called *SSC Liaison*. Its peer-reviewed scientific journal, *The Canadian Journal of Statistics* (in French: *La revue canadienne de statistique*), is widely recognized for its quality. The Society each year bestows a number of awards recognizing excellence in the profession, the most prestigious of which is the SSC Gold Medal for research. In addition, the Society offers two levels of accreditation (AStat and PStat) for professional statisticians who practice in Canada.

Statistical education is an important aspect of SSC activities. The Canadian component of the International Census at School project is perhaps the Society's most visible initiative in this regard. The present book, which also has an educational purpose, was commissioned by its board of directors to mark the International Year of Statistics 2013. The SSC acknowledges the substantial support of the Institut des sciences mathématiques du Québec (ISM) and its director, Christian Genest, in producing this document.