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Book Review

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Walter J. Radermacher. *Official Statistics 4.0. Verified Facts for people in the 21st Century,* Springer 2020. ISBN: 978-3-030-31491-0, 158 pages. DOI: https://doi.org/10.1007/978-3-030-31492-7.

The purpose of this book is neither to describe statistics in general, nor to describe the history of official statistics. Rather, in the author's own words, "… the goal is to describe the status quo for a particular area of application, namely 'official statistics', based on an analysis of its historical genesis in order then to deploy strategic lines of development for the near future of this particular domain" (page 2). In short, it is a story of the past, the current, and the future, and how they interact in the development of reliable information about society.

The history and development of official statistics up until today is briefly described in the introductory chapter and this description provides context for the following chapters. The author resembles the statistical production process with the development of industrialization and mentions W. Edwards Deming who initiated the modern view on production processes and process quality.

The story moves on to the current state, the 'business model' of official statistics, explaining core aspects such as regulations, principles, processes, products, data collection, and necessary skills. The author then dives deeper into the concept of quality in official statistics.

This part of the book gives a comprehensive review of the infrastructure and quality concepts for official statistics, with a focus on the European Union. It is a natural choice since the author is the former director general of Eurostat, the statistical office of the European Union. Quality in official statistics is not easily defined but, taking a general approach, official statistics should meet three requirements; they should be relevant for policy making, consistent with scientific standards and theory, and they should meet the criterion of measurability, meaning that they should for example be reliable, punctual, and accessible. This is manifested and concretized in The European Code of practice and the UN fundamental principles of official statistics, as well as in frameworks for quality management and continuous improvement, to name but a few. The author emphasizes the impact and importance of trained staff for the quality of the statistical output and that necessary competences need to be in place. The reader gets a picture of how national and international official statistics have evolved into the systems that we have today and, in particular, the system for European statistics.

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It is a useful and comprehensive description, but it is the following chapters that give this book a unique perspective. Here official statistics are described as an outcome of a scientific process, reflecting and representing societal conventions.

How do statistics relate to reality and truth? What is knowledge? How do we create knowledge and what are the possibilities and limits of measurement? And how is this relevant for official statistics? These are fundamental questions that are discussed in depth. "The point here is to understand the possibilities and limits of measurement and knowledge creation, and what Deming calls 'psychology' in our case, accordingly, the sociology of the interactions between statistics and society." (page 55) The aspect of communication with users and the need for developing the communication has not been the focus previously in statistical literature.

Official statistics (or any other statistics) cannot, and should not, give the impression to meet expectations to reveal an absolute truth. It is necessary to be clear on what it means to produce and use official statistics. Misunderstanding and wrong perceptions and expectations, paired with statistical illiteracy, can cause irreparable damage to the trust in official statistics and in the producers of official statistics. It is therefore crucial that the definitions and concepts of quality are concrete and transparent, and that they build on scientific standards. To keep the trust in official statistics, it is necessary for producers to be very clear on definitions of quality, its possibilities, and its limitations.

This is the path the author believes in, as the way to handle all the information present in society today and to enable citizens to judge facts in an informed way.

Chapter 3, where most of this is discussed, is challenging to read and probably not the type of text that most of us in the field are familiar with, but it is worth the effort.

A relatively large part of the book is devoted to indicators. They represent a special type and form of statistical information and are increasingly important in society today. Indicators are everywhere and play a role as a way of reducing complexity, sometimes maybe too much. Their increasing significance have not been followed by an increase in methodological development. Indicators are presented for numerous different areas and thus different terminology has evolved. The author points out that a unified terminology is needed, and a possible start are the guidelines produced by Eurostat. It is further pointed out that indicators cannot be developed without involving the users. A process model for co-construction of indicators is presented in the book, that is, a process for working together with the stakeholders when constructing indicators. The discussion about indicators is summarized in a list of specific advice for improving indicators. As a special case, the development of indicators for the United Nations Sustainable Development Goals are discussed.

Official statistics is described as an ocean liner, whose course can only be maneuvered slowly. The author emphasizes the need for a change in planning so that official statistics can meet future challenges much quicker and stay relevant. Three megatrends are identified, which make the need for change necessary: Zettabytes and yottabytes; Evidence and decisions; Facts and alternatives. The first trend recognizes the data revolution, with enormous amounts of data being generated everywhere, implying both opportunities and challenges for official statistics. The second trend is the demand for evidence-based decision-making, a powerful driving force for more statistics but also a threat if not matched by an understanding of the quality and cost of good statistics. The

third trend is again a question of trust and the ability to meet expectations from politicians and the public. The changes that are already taking place and the ones that lie ahead mean more responsibilities for the statisticians, implying a need for strong ethical awareness.

These trends will change the picture of official statistics and the traditional view on production processes. Two important drivers are digitization and globalization. Measuring cross-border flows is a growing challenge for national statisticians, making new international cooperation models necessary.

The author concludes by reminding the reader of main aspects for the governance of official statistics. The main aspects according to the author are summarized in five pillars of statistical governance.

1. Who: Actors and role,
2. What: Statistical programme and products, services,
3. How: Quality assurance,
4. Confidentiality, Data Ownership, Access to Data
5. International cooperation and Relations, Standards, Governance.

The author emphasizes the importance to put governance into practice. Only a regulation will not be sufficient.

The book has numerous real-life examples, mostly from economic statistics and national accounts. They illustrate well the points being made and it is obvious that the author has a long experience in official statistics. This is also manifested in the extensive reference lists ending each chapter.

Throughout the book, the author highlights the importance of counteracting statistical literacy among users of official statistics. High-quality official statistics can strengthen democracy by giving citizens access to key information. But the very aim of official statistics, to be a tool for making informed decisions, can only be achieved if users are aware of the reliability of the figures they are using.

It is not at first sight obvious for whom this book is written. If you are new to the field of official statistics, the descriptions of how the system of official statistics works is informative, but the epistemological discussion is likely to be harder to follow. If you are an experienced "official statistician" much of the description is familiar, and new insights are gained in the discussions about knowledge, truth, and scientific processes. Here is where we see the greatest value of the book. As official statisticians, we should more often take a step back and reflect upon these issues in our daily work. This book is an important reminder of that.