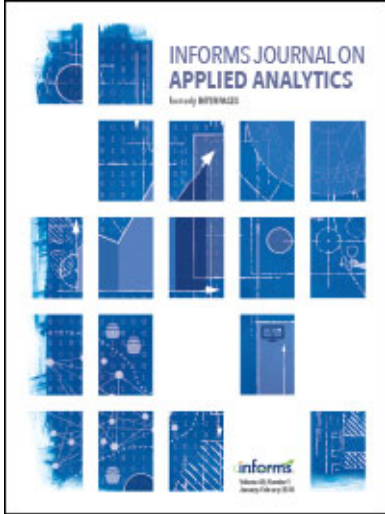




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Book Reviews

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Book Reviews

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Abstract. In *Book Reviews*, we review an extensive and diverse range of books. They cover theory and applications in operations research, statistics, management science, econometrics, mathematics, computers, and information systems. In addition, we include books in other fields that emphasize technical applications. The editor will be pleased to receive an email from those willing to review a book, with an indication of specific areas of interest. If you are aware of a specific book that you would like to review, or that you think should be reviewed, please contact the editor. The following books are reviewed in this issue of *Interfaces*, 48(5), September–October: *Global Carbon Pricing: The Path to Climate Cooperation*, Peter Cramton, David J. C. Mackay, Axel Ockenfels, and Steven Stoft, eds; *Business Analytics for Managers: Taking Business Intelligence Beyond Reporting*, Gert H. N. Laursen and Jesper Thorlund.

CRAMTON, PETER, DAVID J. C. MACKAY, AXEL OCKENFELS, STEVEN STOFT, eds. 2017. *Global Carbon Pricing: The Path to Climate Cooperation*. MIT Press. 252 pp. \$35.00.

There is little disagreement today about three features of the problem of global warming, which is also frequently referred to as the climate change problem. First, human factors have played and continue to play a big role in determining the severity of the problem. Second, the problem is, without a doubt, the most salient environmental problem confronting humankind today. Finally, to efficaciously solve the climate change problem, the nations of the world must take collective action.

But what kind of collective action should the nations of the world undertake? Should we rely on altruism or reciprocity on the part of individual nations to address the underlying problem? Does it make more sense to address the problem with approaches that focus on prices or, alternately, is it more sensible to concentrate on quantity-based approaches? The edited book under review here sheds light on these types of questions. Specifically, the central point made by this book is that in a “group of 10 or 100 countries, finding a reciprocal agreement requires simplification to a common commitment” (p. xi). The 12 chapters in the book provide complementary perspectives that expand on this basic point.

Chapter 1 begins the proceeding by rightly pointing out that despite the public hoopla surrounding the 2015 Paris Climate Conference, this conference did very little to solve the climate change problem, because it focused on collective goals when it should have focused on common commitments. In addition, this conference paid insufficient attention to the strong incentives faced by individual nations to free ride on the actions of other nations and to the negative impact that this kind of free

riding has on the likelihood of cooperation between the participating nations.

Where then should the focus of climate negotiations lie? Chapters 2 and 3 point out that the problem with climate negotiations thus far is that these negotiations have relied on a “pledge-and-review” approach in which nations pledge to take all manner of actions to mitigate the climate change problem, which are then subject to unenforced review. We learn that cooperation will typically not arise out of altruistic motivations. Instead, success in negotiations “requires a common commitment, not a patchwork of individual ones” (p. 7). Therefore, countries “should consider the possibility of international carbon price floor arrangements...[because such] arrangements provide some protection against free-rider issues and losses in competitiveness...” (p. 13).

Drawing on the work of the late Nobel laureate Elinor Ostrom on governing common property resources, Chapter 4 contends that for climate negotiations to be successful in the future, it is essential to comprehend that although the notion of trust cannot be legislated, the concept of reciprocity can be effectively designed into a treaty. Once this is recognized, we can then utilize a global carbon price commitment to effectively deal with the climate change problem. Simply put, global carbon pricing involves an “agreement between countries responsible for most of the world’s greenhouse emissions to price their own fossil-fuel emissions at least as high (on average) as the agreed-on global price, P ” (p. 82).

A uniform minimum global tax-like price on the emissions of carbon, whose revenues are retained by individual nations, can “provide a focal point for a reciprocal common commitment, whereas quantity targets...have a tendency to rely ultimately on individual commitments” (p. 126). This is a key point made

in Chapter 8. This chapter then goes on to point out that because of the reason just stated, relative to a quantity-control instrument, a price-control instrument such as a minimum global price on carbon emissions is better equipped to solve the global warming externality problem.

First, what are the consequences of climate change? Second, when might the current climate trigger irreversible changes in the earth system? Chapter 9 contends that attempts to deal with the climate change problem need to first recognize that there remains considerable uncertainty surrounding our current answers to these two questions. This chapter then points out that the “central challenge of climate policy is to discipline free-riders throughout the world in their use of the atmosphere as a dumping ground. . .” (p. 156). To meaningfully address this challenge, we learn that it will be necessary to create a green climate fund that collects money not only to reward cooperation but also to recognize that there are national differences in pollution control costs and in the willingness to pay for greenhouse gas emission reductions.

Chapter 10 makes three noteworthy points. First, it lucidly explains that nations typically do not take actions to mitigate the deleterious effects of the climate change problem because the costs of such actions are local and immediate whereas the benefits are global and distant. Second, it points out that addressing the climate change problem is difficult because “there is no supranational authority that [can] implement the standard internalization approach suggested by economic theory and often employed at the domestic level” (p. 167). Finally, we learn that economists supporting the idea of international negotiations on price understand that because of the inherent heterogeneity of nations, such negotiations are likely to be successful only if “some mechanism for side transfers (such as a green fund or an allocation of permits) is designed so as to bring the reluctant countries on board” (p. 183).

Let me conclude this review with the following four points. First, there is some overlap in the material that is covered by the individual chapters in this book. Second, a small number of typographical errors are scattered throughout the book. Third, what one gets out of this book depends on how familiar one already is with the current literature on the climate change problem. Readers familiar with this literature will not find a lot of new information; however, readers unfamiliar with this literature will benefit greatly by perusing the individual chapters that provide straightforward and lucid accounts of the basic issues that have prevented us from efficaciously addressing the global warming problem. Finally, having so many established scholars in one book conveys essentially the same message that to effectively deal with the climate change problem,

we now should dispense with “pledge-and-review” approaches and embrace the notion of global carbon pricing is persuasive and also serves as an effective clarion call for affirmative action on sensible climate negotiations.

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LAURSEN, GERT H. N., JESPER THORLUND. 2016. *Business Analytics for Managers: Taking Business Intelligence Beyond Reporting*. Wiley. 264 pp. \$49.95.

Business Analytics for Managers by Laursen and Thorlund is a nine-chapter book that presents the latest advances and applications for using information to influence corporate performance. Laursen is an analytical consultant with master's degrees in digital strategy and marketing and was named a global thought leader by IBM and SAS Institute. Likewise, Thorlund is a business intelligence consultant and frequent speaker on intelligence, analytics, and microeconomics throughout Europe.

The authors defined business analytics as “delivering the right decision support to the right people and digital processes at the right time” (p. xvii). The text begins by describing the business analytics model. The model details how information requirements move down the chain from the business-driven environment to the technically oriented environment with subsequent information moving back up through the chain. The core of the text examines business analytics as information systems with a technological element, human competencies, and specific business processes.

The majority of related books focus the first segment of the business analytics model on how to develop a business strategy. Laursen and Thorlund, however, demonstrate the relationships between overall strategies and the information that business analytics can deliver. Their discussion describes four scenarios on how analytics influence strategy, which subsequently influences analytics. The first scenario is the lack of integration in which analytics are not part of the strategic processes, but instead of solely ad hoc functions. The second is that the analytics function plays a reactive role to strategy where no feedback procedure is provided from the business analytics function to the strategy. The third scenario includes a formal feedback procedure in which analytics are used to analyze target achievement to improve performance. This third scenario focuses on individual departments with the purpose of gaining knowledge for improvements. The final scenario is where information is used to influence the strategy.

The meat of the text is in Chapter 3: *Development and Deployment of Information at the Functional Level*. This chapter explains the difference between retrospective information that is registered on an ongoing basis and

lead information that is used within the business process. Lead information is produced from the analysis of retrospective (lag) information. This leads into identifying critical elements in connection with establishing new or modified business processes. This section is geared toward the receivers of information and knowledge. It details establishing a business process with the Rockart model. This model begins by identifying the objectives and operational strategy and then leads to identifying critical success factors with available leading and lag information.

The chapter on business analytics at the analytical level is the technical section. This section goes into the role, requirements, and competencies an analyst must have. The analyst is the bridge between the business-oriented environment (i.e., receiver of information) and the technically oriented environment (i.e., provider of data). To accomplish this, the analyst must have business competencies and technical understanding along with a tool kit of methodological competencies. The methodological skills (i.e., statistical analysis) are the value add for the analyst. The analyst must understand the business problem and purpose, and understand what data exist and the inner workings around that data to determine appropriate methods for analysis. Then, the analyst must interpret the results such that relevant knowledge is obtained to enhance the business process. The text includes a section for hypothesis-driven methods where the authors describe testing data with several input variables. Commonly used methods to describe correlations among variables in business are the cluster, linear regression, and ordinal regression analyses. These are widely detailed in classical statistics books along with mathematical reasoning; however, the inner workings of the equations are not provided in this book.

Providers of data (i.e., the data warehouse) increase the availability and usability of data. Examples of a firm's collection of source data include: billing systems, social media data, Wikipedia data and similar databases, geo data, Internet of Things data, reminder systems, debt collection systems, product and consumption information customer information, business information, campaign history, web logs, questionnaire analyses, human resources information, production information, and data mining results. However, the difficult task is how to select which is the best information to determine a solution for a given problem. Large firms often use a two-tier business analytics function where they analyze their warehouse information in addition to a market analysis. Internal analyses

examine data available within the organization, whereas external analyses rely on questionnaires and direct contact with customers to collect primary data. When external analysts purchase standardized market reports, these reports are considered secondary data.

Chapter 7 describes structuring a business analytics competency center. This is described as "a forum that includes analytical and business competencies as well as IT competencies" (p. 201). That is, this may be thought of as data science specifically for business. The goal behind this concept is to establish an information wheel: required knowledge is specified and data are retrieved and condensed to information in which new knowledge is delivered to users to influence strategy. An alternative to having analysts as part of the business department would be to place them under the IT function. To assist in this effort, the text describes applying the analytical factor approach in which standardized procedures are established to reduce the time needed to develop analytics. Establishing standardized process will also assist in the faster training of new analysts.

The authors note that business analytics is quickly moving and developing from conventional analytics to pervasive analytics. Instead of only measuring results, pervasive analytics will drive the business with real-time decision making. Another change the authors foretell is how decision support will be made available to users (e.g., as gadgets, computers, phones, watches). In the future, the information wheel will not only be used for business processes, but also for individuals. The processes will speed up with neural networks, which are self-learning algorithms. The authors suggest that the information age will change people's daily behavior just as the industrial era change behaviors of life.

Compared with similar works, this text demonstrates relationships between individual subelements instead of simply describing them. The text also provides examples of value added through the implementation of business analytics. One weakness to be considered is that in-depth statistical analysis related to solving business problems is not detailed on a mathematical level. For a business analytics book, I would assume a small section of simple applied econometrics with techniques that new analysts can use to get their feet wet in the analysis. However, this book has clear language written for professionals in the information system industry. Overall, this book offers a compelling read that I highly recommend.

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