Book review

"Introduction to Transportation Systems" offers a comprehensive conceptual overview to transportation science, mainly from an engineering perspective. It targets a graduate audience being exposed to the field for the first time, but the book is also quite suitable for undergraduate levels. Since the scope of the book is educational, this review focuses mainly on its pedagogical intentions. The approach undertaken by the author is divided into three major parts; the first one being conceptual, the second concerning freight and the third concerning passengers.

In the first part, the authors develop 30 key points that are fundamental in understanding the principles of transportation systems. Each of these points is sequentially introduced, with each point leading to its logical extension into further concepts. These include the concepts of service, competition, flow, volume, infrastructure, costs, demand, peak period, network and performance, just to name a few. This approach, combined with the example of elevators servicing a skyscraper, contributes significantly to the usefulness of the book as a pedagogical guide. The author then concludes the first part with a very good overview of models and their utility for representing and analyzing transportation systems. This is the part of the book that I enjoyed the most.

The second part deals with freight transportation systems. It begins with concepts pertaining to logistics where key issues are introduced within the problematic of a store selling umbrellas. As in the first part, this example has a sound pedagogical relevance. Each freight mode is then presented, mainly from an operational perspective. This part is highly imbalanced with six chapters (78 pages) dealing with rail transportation and only one chapter dealing with trucking and maritime transportation, respectively (24 pages). Considering the relative importance of each of these modes for freight transportation (especially in the US, the main intended audience), this imbalance is empirically unjustified and reflects a bias imposed by the author’s research interests. No consideration was given to air freight, which is difficult to justify in a globalized economy that has seen a remarkable growth in traffic handled by this transport mode.

The third part addresses passengers transportation systems. It is rather disorganized and at some points confusing because it is difficult to grasp the logic behind the choice in the sequence of chapters. Some chapters are very general and encompassing while others are excessively specific. For instance, one chapter is titled "Commuting, Non-work Travel and Safety, and Some Transportation History" while another one is titled "Deterministic Queuing". I failed to understand why the chapter concerning intelligent transportation systems has been placed in the third part, especially when this issue concerns surface transportation; freight and passengers alike. This chapter would have had more relevance concluding the first part of the book or could have acted as the book’s absent conclusion, especially considering the author’s solid involvement on this issue. The chapters concerning public transit and inter-city rail provided a very good introductory perspective for each of these issues from an operational point of view.

The book is grounded in an effective pedagogy of introducing transportation systems and is clearly the result of a pragmatic teaching experience and the compilation of teaching notes that comes with it. What can be perceived as disappointing is the overall simplistic narrative tone accompanied with a high level of fragmentation of the material. It is not uncommon to have sections that have four or five lines and chapters that have four or five pages, hinting that parts of the book may have been hastily assembled. The graphic quality of the figures leaves much to be desired, if not excessively poor, although they are always clear and to the point. On the relatively rare occasions where data tables are presented, nothing more recent than 1994 is offered, which is surprising considering the wide availability of transportation-related information in the US (e.g. Bureau of Transport Statistics website). These issues undermine the pedagogical value of the book. Imbalances are also a drawback, notably when dealing with freight transportation, but also in methodological developments. For instance, it is difficult to understand why mathematical formulations were only used for the passengers transportation part, while they are virtually absent in other parts of the book.

A good indicator of the relevance of a book is its actual intended use. As far as this reviewer is concerned, the book will act as a useful teaching reference, never far from one’s desk. It will also be part of the list of recommended readings for transport-related courses. Fur
ther, each time a student or a colleague asks for a basic
guide to transportation science, this book will certainly
be part of the suggestions. However, the scope of the
book forbids a specialized usage and it was clearly not
the author’s intention to pretend otherwise.

Jean-Paul Rodrigue
Department of Economics and Geography
Hofstra University
Hempstead, NY 11550-1090, USA
E-mail address: ecojpr@hofstra.edu