Book reviews


Kenneth Boyer’s book Principles of Transportation Economics is a welcome addition to transportation economics literature. It appears to be the first book with that title which is surprising since there seem to be dozens of books titled Principles of Economics. Most economists learnt their first economics from one of these books; perhaps Boyer’s book will have an equivalent role for transport economics.

There are few alternative textbooks. Kenneth Button’s Transport Economics has similar coverage and is written at about the same level but deploys more analytical tools than Boyer’s book. However, Button’s book is mainly written from a U.K. perspective, a handicap in the North American textbook market. Several books of readings are available but have problems of coverage and varying levels of presentation. Books which are suitable for introductory courses in business logistics or supply chain management have minimal overlap with Principles of Transportation Economics and the differences in approach and emphasis make it unlikely that they would be considered for the same courses.

The organization of the book is straightforward and logical; it covers transportation demand, cost, pricing, investment, and regulation (of both market power and externalities) in 14 chapters amounting to just over 400 pages. The coverage is very comprehensive – all modes are covered and a good balance is struck between intercity and urban and freight and passenger. Statistics and information are reasonably current but are based on the U.S. transport system. Although five of the seven illustrations in the introductory chapter’s examples of policies guided by transport economics are non-U.S., this is a high water mark for non-U.S. material. The Channel Tunnel is used later as an example and the index has one reference to British Airways, one to Canada, and two to Japan but that is about all the foreign material in the book. Furthermore, international transport gets short shrift compared to U.S. domestic transport.

The introductory first chapter should help make students aware of, and interested in, the problems which transport economists find so fascinating. The next chapter on general transport demand contains a very effective graphical and numerical explanation of derived demand for freight transport and integrates this with a simple exercise on transport networks and firm location. The following two chapters on freight and passenger transport demand provide less analytical content but many pages of statistical information, including a two-page spread on commuting mode share and distance for 50 U.S. metropolitan areas. This information might be interesting for specialists, but it is too much for students and examples would have sufficed. The coverage in these chapters is typically comprehensive although intercity automobile transportation is given less coverage than it deserves.
The book moves into cost with a good chapter on transport cost concepts, including an extended illustration of airline network economies. Deregulation has made network decisions much more important for airlines and similar carriers and Boyer’s example covers many of the major issues. However, the illustration omits explicit consideration of passenger time costs and oversimplifies the complex aircraft scheduling problems that airlines must address when they construct their route networks and flight schedules. Overall, the cost basics are well-presented.

The next three chapters deal with fixed facilities costs, vehicle ownership costs, and vehicle operating costs. Because of the genuine effort to include all modes of urban and intercity freight and passenger transport, a total of 90 pages is devoted to these three applied cost chapters. For many purposes, there is simply too much statistical information (e.g., long tables on fuel expenditures by U.S. air carriers from 1972 to 1994 and on traffic volume, density, speed, and cost relationships, information better presented in a diagram). Other approaches to providing insight into cost relationships and problems could have been used; for example, the descriptions of vehicle costs in Chapters 7 and 8 could have been replaced by an analysis of how carriers should decide what to buy for particular services. An exercise explaining optimal ocean vessel size is included but for most modes the interesting and complex interplay between equipment ownership and operating costs is not discussed. The operating cost savings for urban automobiles and trucks from various forms of intelligent vehicle systems could have been the basis for a good illustration.

Chapter 9 covers investment for both vehicles and infrastructure. It includes the elements of investment analysis and illustrations of Union Pacific’s purchase of Overnite Transportation, the Tennessee-Tombigbee Waterway, and investment alternatives for commuter railroad extensions north of New York City. The topic of the first illustration, an intermodal acquisition decision, lies somewhat beyond standard investment analysis techniques and many of the possible motivations for Union Pacific’s purchase are not considered. The Tennessee-Tombigbee illustration is used to explain the mechanics of public sector benefit-cost analysis but the usual equation is not specified. The commuter railroad illustration is considerably more informative than the other two, principally because it incorporates network issues introduced earlier and social cost issues introduced later.

Pricing, the topic of Chapters 10 and 11, is crucial in any transportation economics course. The organization of this material is always a challenge – Boyer addresses it by starting with a “golden rule” for efficient pricing (price = short run marginal cost) and then working through the application and modification of the rule in different pricing problem settings. In general this works well (although one could criticize treating peak-load pricing as a variant of either congestion pricing or backhaul pricing rather than as a pricing topic of interest in its own right), but there are some problems. One is that the pricing chapters are not always clear on how best to include infrastructure costs when setting prices. The inherent conflict between Chapter 10 (“Efficient Pricing”) and Chapter 11 (“Paying for Use of Transport Facilities”) is left more unresolved than necessary; bringing in Ramsey pricing earlier than the end of Chapter 11 might have helped. Also, Boyer seems unable to make up his mind as to whether road congestion pricing without the proceeds devoted to road purposes is better than no congestion pricing at all. On page 262 he writes “It is unimportant what happens to the money collected from driver” but in the next paragraph he argues “... tolls whose revenue is simply discarded will make all transportation users worse off...” From an efficiency perspective, if we assume away the administrative and transactions costs, congestion pricing is desirable, but by restricting output and raising price it will reduce the
consumer surplus of road users. This is an important and complex issue and while some of its ramifications are dealt with in a suitable manner, the reader is left without a completely satisfactory resolution.

Chapter 12 on market power in transportation starts with a very good extended example of a fixed facilities monopoly, the Mackinac Bridge in northern Michigan. The discussion of pricing the services of this facility is clear and informative and here students can learn much about avoidable costs, price-setting, and the effects of market power. The rest of the chapter deals with market power of transport operators and recognizes the crucial role of infrastructure in establishing and determining the importance of market power and the typical absence of strong market power when infrastructure is shared between carriers.

This chapter leads naturally into Chapter 13 on the regulation of market power. The history of ICC regulation of railroads is dealt with effectively and shorter sections on regulation of the other intercity modes present a suitable level of detail. Material on the processes and beneficiaries of regulation, as it used to be practiced, follows and then current U.S. transportation regulation is described. The chapter continues with a summary of the effects of deregulation and the public policy lessons that can be drawn from the use of regulation to control market power. The final section takes note of the ongoing presence of now largely unregulated market power present in phenomena such as carrier-controlled gates and slots at airports and strong second-degree price discrimination in airline pricing.

The book concludes with a chapter on regulating the social costs of transportation. Chapter 14 starts with a theoretical presentation of the social cost problem in transportation and continues with case studies on automotive air pollution and safety. The pollution case study deals effectively with the causes and consequences of automotive emissions although it does not go very far in discussing the dilemmas policy-makers face if they try to optimize emission levels. Although several regulatory and policy dilemmas are discussed, the well-known proposition that there is an optimal level of pollution is not presented. The safety case study, however, does identify the possibility of too much safety regulation and the counter-intuitive result that high safety standards will induce unsafe behavior by car drivers.

As a textbook, Principles of Transportation Economics lacks two pedagogical elements that help make a book attractive to students and instructors – glossaries with the chapter summaries (because transportation economics has many unfamiliar terms) and question sets. Course instructors may wish to add their own. A final criticism is that, although the level of economics is suitable for upper level undergraduates, the exposition relies more on rhetoric than do many specialized texts in other areas of economics at this level. Some opportunities to use graphical exposition are missed, notably in the pricing chapters, and there is very little mathematical exposition. Also, the discussion of econometric estimation of demand and cost functions seems more elementary than necessary.

Overall, this is a worthwhile book. Among its strengths:
1. It is well-written and has fewer than the average textbook’s number of editorial errors.
2. One of its main contributions will be to serve as a quick reference to the literature. There are almost 20 footnotes in the average chapter and many contain multiple bibliographic references.
3. The best examples and illustrations (and there are more than mentioned in this review) are very good.

Any person with an interest in transportation economics should acquire Principles of Transportation Economics. It is a valuable reference to the field and qualifies, at least in North

America, as the best current comprehensive textbook for general courses in transportation economics.

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As a field develops, new paradigms arise. Could Macrologistics be the new logistics paradigm? Early on, Stein and Voehl define Macrologistics as “a means for designing a catalyst for change that is more than superficial” (p. 5) and “the use of logistics policies to change the overall functioning of organizational processes and to alter the fundamental way that an organization performs its logistics operations” (p. 7). By the end of Chapter 1, the meaning of Macrologistics remains unclear.

The authors link Macrologistics to many current performance improvement programs in logistics and quality management, such as: benchmarking, electronic data interchange (EDI), ISO 9000, just-in-time (JIT), JIT II, quality function deployment (QFD), statistical process control (SPC), supply chain management (SCM) and total quality management (TQM). Many of these programs are referred to as examples or methods or techniques or even engines of Macrologistics. Its association with these well-known programs makes the meaning of Macrologistics somewhat more clear. However, now one wonders: What is new and exciting about Macrologistics?

The book outlines three requirements for successful use of Macrologistics strategy: a conceptual framework, leadership, and information systems. The conceptual framework consists of three separate phases: alignment, mobilization and integration. Unfortunately, these terms are never defined – adding to the mystery of Macrologistics. Moreover, it is unclear when one phase ends and another begins. To their credit, Stein and Voehl recognize the crucial role of people in (Macro)logistics. Under leadership, the authors assert that “teamwork and communication skills must be sharpened” (p. 11).

Macrologistics Management contains well-written chapters on SCM (ch. 4) and JIT (ch. 7). Stein and Voehl define SCM as “the systematic effort to provide integrated management to the supply chain to meet customer needs and expectations from the suppliers of raw materials through manufacturing to end customers” (p. 55). Courtesy of Ralph Lewis, ch. 4 concludes with a detailed discussion on activities to facilitate SCM. These activities draw on three key SCM resources: people (human resources), technology, and information systems. While technology includes hardware and software, for transmitting and analyzing data, systems help integrate various elements of Macrologistics. The book also provides a thorough description of JIT II, developed by the Bose Corporation as “the ultimate partnership program for compatible cus-