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## Transportation Research Forum

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Book Author(s): Kenneth Button

Review Author(s): Wesley W. Wilson

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*Button, Kenneth. Transport Economics, 3rd ed. Cheltenham, UK and Northampton, MA: Edward Elgar, 2010. ISBN 978 1 84064 191 2 (paperback)..*

## Transport Economics

by Wesley W. Wilson

Economic well-being is driven by trade, and transportation drives trade. Despite this linkage, interest in transportation has waned. Relatively few university economics departments offer courses in transportation as part of their curriculum; there are relatively few books in the area; and relatively little work is published in general economics journals. *Transport Economics*, by Kenneth Button is the most current and up to date book in the field. It is in its third edition, with the first edition published in 1982, and the second in 1996. It has 14 chapters and 498 pages that cover the venerable history of transport economics, identifies the contributions of major "thinkers" in the field, along with the foundation that is in most books on the subject (demand, costs, congestion, investment). In addition, however, there are specialized chapters that explicitly deal with environmental issues, logistics, planning, and forecasting. The inclusion of these chapters hit on emerging issues and connections to other fields. A thorough read of the text will give readers a strong sense of the history of the field, central figures, but also important developments and linkages to other fields that reflect the multidisciplinary nature of the field of transportation.

The first three chapters give an excellent overview of the field, its history, its magnitude and emerging trends and issues. The first chapter points out some of the challenges of transport as a profession. I very much appreciate the discussion of the importance of transportation to economics which is then followed by the fact that there are very few specialists in the field. This is, indeed, a fact that has plagued the field for the last several decades. He notes that there are a number of people that dabble in the field, and this dabbling has led to major innovations in economics. These include the role of common and joint costs that came from the famous Pigou-Taussig debates in the early 1900s, the random utility model from Dan McFadden in the 1970s, congestion and peak load pricing, and a wide array of studies that examine the level and structure of costs, efficiency, demand, the pricing of public goods, the impetus and effects of government involvement in business, etc. There are many references to hallowed names in economics and their contributions to transportation. Button appropriately notes that "...many of the seminal papers on the subject [transportation] that have appeared in the general economics literature have often been produced by individuals with a broad interest in economics rather than transport specialists." (p. 6).

Chapter 2 is a broad overview that is filled with facts and figures. Many books have such information, and I do believe it is an important feature; it gives students a sense of the sheer magnitude that transportation plays in their own lives as well as the local, national, and world economies. Chapter 3 begins with a discourse on the desire for transportation, and points quite rightly, that transportation is not consumed for pleasure but for what transportation allows you to consume. I very much appreciated the sections that cover industrial location decisions and the market area of firms that produce products transported. Each of these sections introduces models and connects theory to issues. The chapter closes with sections that provide intuitively developed models that explain the relationship between transportation and land values and wages. In each case, Button develops the relationships consistent with the classic papers in the literature. This is a superb strength of the book, wherein he both develops the history, the great thinkers, and the concepts in conjunction with one another.

Demand and costs are covered in chapters 4 and 5. Demand is not derived from principles, but rather is discussed in terms of very general neoclassical consumer demand function, with discussions of the usual comparative static shifts, elasticities, length of run, etc. He delves into the value of time

and the role of quality in demand decisions and summarizes the differences in value of time across countries and studies. It was peculiar to read the section on car ownership (not often part of a transport economics book). I was captivated by the presentation and by the introduction of product life cycle theory and forecasting. Button notes shortcomings of the approach, and then points to choice model methods as a solution. This latter is extremely brief, and, in my opinion, warrants a section or chapter of its own. The cost chapter covers quite well the concepts of fixed and variable costs along with short- and long-run issues. In addition, he discusses a wide variety of cost concepts that are specific to transportation such as economies in vehicles, infrastructure, fleet, scale, scope, density and experience. As an instructor, I very much welcome this discussion, as many others try to fit transport concepts into the standard micro models, whereas Button develops the models in the context of the transport concept. Another strong feature of this chapter is the discussion of cost allocation issues. While cost allocations are present in many industries, they are of direct policy relevance in transportation, and the problems of cost allocation tend to be somewhat unique to transportation circles. I was a little surprised that the notion of a generalized cost of transportation was introduced in the cost chapter (it may be better suited for the demand chapter). Toward the end of the chapter, there is an array of topics that seem out of place, e.g., service bunching. Some of the discussion requires an equilibrium mode, and I note that following demand and costs, I did not see a chapter on firm strategy, equilibrium, and performance. That is, there is excellent material in these sections, but I might have placed them elsewhere. The final section points to statistical measurement of costs and economic efficiency. In this section, a relatively more rigorous presentation of the theoretical tenets of a cost function is presented, followed by a discussion of translog and also DEA analysis. While they are complete, they might form a larger role in the chapter.

“External Costs of Transport” is a lengthy chapter, at nearly 50 pages. It teaches students of externalities (pecuniary and technological), and then describes pollution and congestion externalities. This is followed by a very cursory description of transportation and the environment and then moves to the valuation of externalities with hedonic, travel costs, and stated preference. Unfortunately, with a more complete discussion of discrete demand decisions, the valuation of attributes would have been an excellent addition. The remainder of the chapter describes the magnitudes of environmental externalities, energy use, and congestion. These are, as with the rest of the book, complete pieces with a sense of policy, literature, and facts interpreted with the use of economic principles.

The chapter on pricing points to the complexity of pricing with regard to objective, purpose, and even market structure. Models are presented to represent shipping conferences, marginal cost pricing, short- and long-run pricing, the problem of second best, product differentiation, price discrimination, and “yield management.” The comprehensive nature of this chapter sets it apart from other texts, which often focus on presentation of equilibrium models and outcomes without the institutional detail that is so important to pricing decisions. Further, at the end of the chapter, there is discussion of real world issues and concerns often ignored in other texts, e.g., the problem of a manager that must price under uncertainty from stochastic demand, peak load pricing, the lack of a core, etc.

The remainder of the book applies principles to policy, logistics, investment, planning, and forecasting. The first of these, on environmental policy, includes excellent discussions of tradable permits, pollution taxes and subsidies, adoption of environmentally better options, etc. It also describes modal energy use, policy options, and the successes of policy. I am surprised that there is not a lengthier discussion on safety issues, speed limits, and the like. The chapter on congestion is similarly handled. There is a discussion of externalities and then policy with respect to transportation, e.g., road pricing. Again, as is present throughout the book, the chapter points to the primary developers of an area—in this case, Ronald Coase, William Vickery, and Sir Allan Walters—and also presents a variety of statistics and examples which bring out some of the issues in implementation. This is extremely well done and executed.

The presentation of investment, planning and forecasting, and development (Chapter 11, 12, 13) broaden the appeal of the book and the multidisciplinary nature of transportation. These chapters, together with the logistics chapter (Chapter 10), connect business, planners, economics, and the role of investment. This sequence begins (Chapter 11) with the role of infrastructure and then covers basic principles of investments, cost benefit analysis, and the complications of transportation. The discussions include short-run and long-run presented in simple demand and cost models and the effects of capacity choices. Button compares commercial and social approaches to investment and alternative forms of financing. Students are introduced to net present value in the context of evaluating investments. The discussion leads naturally to cost/benefit analysis in the public setting. Through this discussion there is considerable discussion of Pareto optimality and the Hicks-Kaldor compensation principles, which are central to decision-making. It closes with social benefits, the practice of cost/benefit analysis, a comparison of techniques, effects on national income, and institutional considerations. The investment chapter is followed by a chapter on planning. It starts with the development of planning, the theory of planning, the use of models and forecasts, and commonly used techniques that apply to trip generation, gravity models, and disaggregate choice models. Another strong feature is that it points to major models that have been used. This provides a linkage of students into planner lingo, which is often lacking. Planners often rest investments in terms of economic development. Chapter 13 provides a historical account, introduces the Solow models, and notes its shortcomings. It then moves to new economic growth theory models and then to the relationship between transport infrastructure and economic productivity and multipliers. The chapter concludes with less developed countries, transport policies in the UK, and regional and urban. Throughout the chapter, there is considerable history, contributions of notable authors and ideas, and descriptions of factual evidence.

The final chapter of the book is on economic regulation of transport. It provides an overview of the breadth of regulations that impact transport and the theories of regulation. Button enumerates and describes a number of “rationales” for economic regulation that fall broadly into the market failure (regulation for the public interest category). He then describes instruments of regulation (a long bullet list), and at the end of the section there is a very brief discussion of the demand for regulation and captive theories of regulation. The chapter then delves modestly into the regulation of market power, with reference to the ever famous Averch-Johnson model. In addition, there are discussions on price cap regulation, contestable markets, auction models, etc. The chapter concludes with a discussion of phases of regulation and deregulation, and point to the speed of reform along with an assessment of regulatory reform. The only real complaint that I have on this chapter is that I wanted more, and I would have liked more discussion of not only regulation but deregulation. However, regulation and deregulation is quite idiosyncratic, wherein each mode has its own history, institutions, regulation, and deregulation. Hence, this recommended addition may be a book unto itself.

Overall, I strongly recommend researchers and students new to transportation, or even those that have been in the field a long time, read this book. The book can be used in the classroom, but is also a valuable research reference and an interesting read. It is easily accessible to most readers, and effectively transmits major issues, researchers, and research themes in transportation economics.

**Wesley Wilson** is a professor of economics at the University of Oregon. He publishes widely in the areas of transportation, industrial organization, trade, labor, agriculture and applied econometrics. He is the managing editor of *Economic Inquiry*, a former president of the Transportation and Public Utilities Group of the American Economic Association, on the Inland Waterway and Agricultural Transportation Committees of the Transportation Research Board, a former president of the Agricultural Chapter of the Transportation Research Forum, and is an affiliated faculty with the Upper Great Plains Transportation Institute and Christensen Associates. He is an associate editor for the *Journal of the Transportation Research Forum* and for *Maritime Policy and Management*, a member of the board of editors for the *Review of Industrial Organization and Transportation Policy*, and a former member of the Editorial Board of *Agribusiness: An International Journal*. From 2003-09, Wilson was a technical advisor and visiting scholar to the Navigation and Economics Technologies program of the Institute for Water Resources, Army Corps of Engineers. Since 2009, he has been an expert economist working with the Surface Transportation Board to identify alternative strategies for estimating costs and markups in a multiproduct industry. He has also received a wide variety of grants, most notably from the National Science Foundation (with Bruce Blonigen) to examine the effects of trade policy in steel markets.