

Book review

Levinson, DM: Financing transportation networks (Transport Economics, Management and Policy)

Cheltenham (UK) and Northampton (US): Edward Elgar, 2002
232 pp., US\$ 95.00. ISBN 1-8406-4594-6

Financing Transportation Networks – is a somewhat misleading title for this important contribution to the transportation finance literature. Rather than seeking to provide a general account of transportation network finance, the book examines the prospect of a widespread adoption of one type of transportation financing option – tolls (boundary tolls, in particular). Currently, tolls represent less than 5% of total highway revenues. In comparison, gas taxes account for almost 80% of these revenues. Under the right circumstances, a shift to widespread toll financing of transportation networks is not only possible, according to the author, but it would also offer a more equitable solution to transportation finance. The author points out that “just as gas taxes substitute more efficiently for general taxes, direct road pricing could substitute for gas taxes.”

The central premise of the book is that decentralization and smaller jurisdictions would serve to facilitate a move toward a more widespread use of tolls as a means of financing roads. The premise is based on the argument that smaller jurisdictions have more motivation to impose tolls than large jurisdictions. Large jurisdictions and centralized governance, it is argued, favor tax financing (i.e., gas taxes and general taxes), because a larger number of trips occur inside the jurisdictional boundaries of large jurisdictions (i.e., local trips) and thereby do not incur tolls (in the case of boundary tolls). The relatively high weight on local trips creates an environment where costs are difficult to recover and where the collection of tolls is politically unstable. Moreover, larger jurisdictions need to recover relatively higher costs at each toll station, due to the larger transport network serviced. Conversely, a more decentralized governance structure would serve to enhance the political feasibility for jurisdictions to adopt toll roads, by allowing jurisdictions to institute toll roads that tax non-residents, relatively more than local residents, as well as by reducing “recover costs.” As pointed out by the author, “under the right circumstances, boundary toll will enable a jurisdiction to achieve the locally ideal policy of “taxing foreigners living abroad.”

The book is divided into six major parts. The first part (Chapt. 2) provides a comprehensive account of the history of toll roads, both internationally and in a US context. Most important, the section seeks to connect shifts in the

level of governance in the US to the adoption of toll roads. Historical data is used to illustrate that the low level of turnpike utilization in the US may be explained by a trend toward national transportation policies. More recent trends, according to the author, indicate that tolls may again become a feasible option for road financing. The most important reason for this is argued to be the availability of new technologies for toll collection, and the completion of the US interstate highway system, which have made road financing a local problem again.

The second part of the book (Chapts. 3–4) discusses costs and revenues involved in transportation financing. The cost section offers a conventional review of major cost categories and methodological challenges that need to be accounted for in determining the cost of transportation. While short, the revenue section empirically examines the dependence of state highway finance on tolls, by testing the hypothesis that jurisdictions highway finance is determined in part by the share of non-local traffic. The result indicates that the relative burden of tolls collected from non-locals is positively related to the size of that burden. The section on revenues also provides evidence to support the hypothesis that neighboring jurisdictions commonly respond with new or increased tolls in response to new or increased tolls levied by the neighboring jurisdictions (i.e., a retaliation behavior is found to exist).

The third part provides discussion and analysis of the implication of institutional and organizational structures on the prospect of widespread toll financing (Chapt. 5). Specifically, the relationship between network and governmental hierarchies is examined.

The fourth part (Chapt. 6) briefly addresses the issue of intertemporal equity, as it relates to temporal “free-riders.”

The fifth part (Chapts. 7–9) considers the central premise of the book, described above, in three different contexts. These contexts include (1) a beltway; (2) a long road representing an intercity highway that goes across several states; and (3) along a state border. It is illustrated that tolls will be the preferred source of finance, in cases where jurisdictions are sufficiently small, demand sufficiently high and collection costs are relatively low, hence, supporting the premise of the book.

The final part of the book (Chapts. 10–13) develops a framework for evaluating network finance decisions, and examines the deployment of ETC. A summary of the major points and conclusions of the book is provided, as well.

Overall, the book makes sufficient progress toward illustrating how decentralization and smaller jurisdictions may facilitate a move toward a more widespread use of tolls as a financing source for transportation networks. It illustrates this by using an innovative approach, which put into question the effectiveness of the conventional institutional framework for providing public transportation services. It is noteworthy that the book, at several occasions, utilizes and applies game theory as a method of analysis. The book also addresses and raises a number of important questions about the prospect of a widespread adoption of toll roads in the US that ought to stimulate the emergence of extension studies. For these reasons, the book is an important addition to the existing body of literature on toll roads and road pricing, which conventionally have been focused on optimal road pricing. A drawback of the book is its frequent use of complex economic theories and equations to describe many phenomena addressed in the book. This may be a

remnant of its origins. The book is based in part on a doctoral dissertation completed in 1998.

The book ought to be read by any practitioner or scholar who claims a serious interest in transportation finance. It would be an excellent secondary text for any course in transportation finance or policy, in either an economics department or a public policy program. This is a most welcomed addition to the transportation finance literature.

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