

## *Book Selection*

Edited by RICHARD EGLESE and MIKE PIDD

KENNETH TRAIN: Qualitative Choice Analysis - Theory, Econometrics and an Application to Automobile Demand	665
MICHEL MINOUX: Mathematical Programming: Theory and Algorithms	666
JOHN BERRY, DAVID BURGHESE and IAN HUNTLEY (Editors): Decision Mathematics	666

### **Qualitative Choice Analysis - Theory, Econometrics and an Application to Automobile Demand**

KENNETH TRAIN

MIT Press, Cambridge, Massachusetts, 1986. 252 pp. £27.50

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This book is really two books. The first part gives the theoretical justification for many models used mainly in transportation studies, and the second part is a detailed case-study report.

'Qualitative' is the wrong word to use to describe these models. 'Discrete' would have been a better one. The situations addressed are those where somebody has to choose one from a (preferably small) number of mutually exclusive alternatives, such as how many cars to own, and of which particular make. In such situations, econometricians cannot use their favourite model (multiple regression), so they have to use something else.

The first part of this book describes the 'something else' currently available, in a way that could be very useful to anyone applying this sort of model. There is a lot of mathematics in it, but it is always a good idea for modellers to understand the theoretical justification for the models they use, and this is explained fairly clearly here.

The standard logit and probit models are derived using utility-theory concepts. I felt that the author did not really go far enough in this regard - I would have appreciated a discussion of whether the extreme value distribution is plausible for the 'unobserved' component of utility. This assumption certainly keeps the models simple, but is that sufficient justification?

The drawbacks of these models (the classical red bus/blue bus paradox for logit, and the unwieldiness of probit) are highlighted, and a combined, 'generalized', model introduced which overcomes these to some extent. There is also a description of a model to be used when both discrete and continuous choices are involved.

The second part of the book gives a very detailed, but clear, case-study description of the author's research into car-ownership demand. While the methods used can be seen as an application of the theory described earlier, most of this section will be of limited interest to anyone not involved in modelling demand for cars. It might have been better to issue it as a separate book.

The book is one of a series in transportation studies, so it is perhaps not surprising that most of the examples cited are in this field. However, the models would surely be applicable to many other fields - does anyone, apart from transport modellers, use logit and probit and their derivatives?

MICHAEL WRIGHT