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On nonlinear weighted least squares estimation of Bass diffusion model

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**Abstract.** The Bass model is one of the most well-known and widely used models of first-purchase demand. Estimation of its parameters has been approached in the literature by various techniques. The focus of this paper is on a nonlinear weighted least squares fitting approach. As a main result, two theorems on the existence of the least squares estimate are obtained. One of them gives necessary and sufficient conditions which guarantee the existence of the least squares estimate. Some numerical experiments are given to illustrate the efficiency of our approach.