John R. Sorenson, John T. Tschirhart, Andrew B. Whinston

A GAME THEORETIC APPROACH TO PEAK LOAD PRICING

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The authors present the problem of pricing in decreasing cost industries that exhibit the peak load phenomenon and deal with the license fee or lump-sum fee in the tariff and the distributional impact of this fee.

The consumers and the producers considered as members of a club are characterized by their demand for the good or service produced, and by a cost curve, respectively.

After a brief discussion of several basic game theory concepts, the peak load pricing game (PLPS) is elaborated and some pricing methods are analysed. The game developed is one of sharing the benefits from cooperation among consumers. A theorem of existence of the game core is given, but two-part tariffs may yield pricing arrangements which are not in the core unless further constraints are added. Then the possibility of moving from existing to new rate structures is discussed, with particular emphasis on average cost pricing as an existing rate structure. The existence of the core implied that there were stable tariff structures from the standpoint of coalition acceptability.

Three examples of tariff structures were used as possible allocation schemes: the first was the Shapley value, the second was a two-part tariff and the third example was the z-allocation.

M. Stoica