Competitive Behaviour-Based Price Discrimination for Software Upgrades

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The introduction of product upgrades in a competitive environment is commonly observed in the software industry. When introducing a new product, a software vendor may employ behavior-based price discrimination (BBPD) by offering a discount over its market price to entice existing customers of the competitor. This type of pricing is referred to as competitive upgrade discount pricing and is possible because the vendor can use proof of purchase of a competitor's product as credible evidence to offer the discount. At the same time, the competitor may offer a discount to its own previous customers in order to induce them to buy its upgrade. We formulate a game-theoretic model involving an incumbent and entrant where both firms can offer discounts to existing customers of the incumbent. Although several equilibrium possibilities exist, we establish that equilibrium with competitive upgrade discount pricing is observed only for a unique market structure and a corresponding unique set of prices. In this equilibrium, instead of leveraging its first mover advantage, the incumbent cedes market share to the entrant. Furthermore, the profits of both the incumbent and the entrant reduce with switching costs. This implies that the use of BBPD has product design implications because firms may influence the switching costs between their products by making appropriate compatibility decisions. In addition, lower switching costs result in reduced consumer surplus. Hence, a social planner may want to increase switching costs. The resulting policy implications are different from those prevalent in other industries such as mobile telecommunications where the regulators reduced switching costs by enforcing number portability.

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