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Effects of Increased Variety on Demand, Pricing, and Welfare

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Abstract

We use order statistics to analytically derive demand functions when consumers choose from among the varieties of two brands—such as Coke and Pepsi—and an outside good. Soft-drinks have no price variability across varieties within a brand, so traditional demand systems (e.g., mixed logit) are not identified. In contrast, our demand system is identified and can be estimated using a nonlinear instrumental variable estimator. Our demand functions are higher-order polynomials, where the polynomial order is increasing in variety. Because these demand curves have convex and concave sections around an inflection point, firms are more likely to respond and make large price adjustments to increases in cost than to comparable decreases in costs. We compare the profit-maximizing number of varieties within a grocery store to the socially optimal number and find that consumer surplus and welfare would increase with more variety.

key words: varieties, product line, consumer surplus, welfare, demand, order statistics

JEL Codes: L2, D2

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