

Ironing, Sweeping, and Multivariate Majorization: Optimal Mechanisms for Mass-Produced Goods

Nicholas Bedard (Wilfrid Laurier University)

Jacob Goeree (UNSW Business School, AGORA Center for Market Design)

Ningyi Sun (UNSW Business School)

Abstract:

We study the sale of an excludable, non-rival good by a monopolist when buyers' values are interdependent, i.e. buyers' utilities from consuming the good depend on their own and others' information. Most mass-produced goods fit this framework. We develop a constructive approach to deal with incentive compatibility constraints and thereby characterize the profit-maximizing mechanism. In particular, we exploit the structure of the Kuhn-Tucker conditions resulting from the constrained optimization problem to define a novel multivariate majorization concept. Our majorization technique allows us to generalize Mussa and Rosen's (1978) "ironing" to settings with multidimensional information. We also relate our majorization approach to Rochet and Choné's (1998) "sweeping" method. We illustrate how discriminatory access rights lead to constrained majorization, resulting in higher seller profits as well as a more efficient production of mass-produced goods.