

The Impact of Asymmetric Regulation on Product Bundling: The Case of Fixed Broadband and Mobile Communications in Japan¹

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Abstract

Product bundling may benefit or harm consumers depending on the correlation between consumer willingness to pay for the bundled goods and the levels of market dominance of firms. We develop a structural demand model that allows for correlated consumer's willingness to pay and flexible complementarities/substitutabilities. We estimate this model using data from three surveys conducted by the Japan Ministry of Internal Affairs and Communications. The estimation results show that fixed broadband and mobile communications are complements for the Japanese telecommunication incumbent but ambiguous for competitors. To assess the effect of asymmetric regulation on product bundling by the incumbent, we conduct a counterfactual analysis of a two-stage game where firms choose whether to set bundle discount or not to set for fixed-broadband and mobile communications at stage one and set prices at stage two. The subgame perfect Nash equilibrium of the two-stage game with/without asymmetric regulation shows that mixed-bundling is the dominant strategy for the incumbent. To avoid cannibalization, the incumbent set large discounts for bundle and set high prices for separate goods. Along with high market dominance of the incumbent, this strategy decreases the consumer surplus by 18.8%. Under subgame perfect Nash equilibrium, the diffusion rates of fixed broadband decreases from 88.9% to 88.0% and the diffusion rates of mobile communications increases from 95.25 to 95.71%. We also find that pure bundling, as a tool for leverage, is not a subgame perfect Nash equilibrium.

Keywords: Fixed-to-mobile substitution, Bundles, Leverage, Discrete-Choice Model
JEL Classification: L4, L96, D43

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