

Public Abstract

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Many network industries have an upstream monopolist that sells an essential input to downstream firms. When price of access is regulated the integrated monopolist may have incentives to degrade the quality of access if it is integrated with one of the downstream firms. Despite the growing concern about the detrimental effects of sabotage, there has been little work on discovering and documenting actual examples of sabotage and designing welfare optimal realistic regulatory toolbox to combat such quality discrimination.

We study the US natural gas, electricity and telecommunications industries to document instances of sabotage. For example, we found that in the US natural gas industry the integrated parent pipeline company can directly affect the non-affiliated rivals' costs by unexpectedly interrupting of natural gas supply justifying such action for the system reliability while no such action is applied to the affiliated firm when both the affiliate and non-affiliate are under the same tariff or contract terms.

We also study the welfare optimal access charge and vertical control policies under two different downstream market structures, differentiated goods Bertrand duopoly and the dominant firm competitive fringe model. We find the regulator faces a trade-off between reducing the double markup problem by pricing access low, versus pricing access high in order to deter non-price discrimination. Also, the optimal vertical control policy is chosen to balance a trade-off between achieving an efficient downstream production mix and sabotage deterrence. The results found in this dissertation may have significant impact on the regulator's choice of policy parameters.