
Rejoinder to Shin and Sudhir and to Cabral

*JEAN-PIERRE DUBÉ, GÜNTER J. HITSCH, and
PETER E. ROSSI**

We begin by thanking our discussants, Jiwoong Shin and K. Sudhir (2009) and Luís Cabral (2009), for their thoughtful comments on our research (Dubé, Hitsch, and Rossi 2009). Both commentaries focus on the stylized (“simple”) model in our article, which we used to motivate our more general empirical model.

Shin and Sudhir solve a two-period Hotelling model. They find a U-shaped relationship between switching costs and the average (expected) price across both periods. Though noteworthy in their own right, the results Shin and Sudhir obtain for the two-period model are not comparable to those we obtained in our infinite-horizon model. Shin and Sudhir acknowledge this point in their discussion.

In our model, the relationship between equilibrium prices and switching costs is influenced by both harvesting and investment motives. In Period 2 of Shin and Sudhir’s model, there is no investment motive, because the firm ceases to exist in the next period. In Period 1 of the model, there are no existing loyal customers, so the harvesting motive is absent. Averaging the first and second period prices cannot be viewed as an approximation to the infinite-horizon steady-state price.

We also argue that our infinite-horizon model provides a good approximation to the actual marketing environment in which firms are not expecting to terminate products in the near future. In our empirical application, we consider long-standing products for which there is no known terminal period.

Cabral’s discussion summarizes the results of a model he analyzed in Cabral (2008), which includes our simple, motivating model as a special case. In an infinite-horizon game, two symmetric firms compete for one buyer, who is loyal either to Firm 1 or to Firm 2 (alternatively, there are many buyers, but the firms can discriminate between loyal and nonloyal customers). Cabral (2008) shows that as long as the cost of switching is sufficiently small, average (expected) prices decrease. In his commentary herein, Cabral provides the following intuition for why this result occurs. The harvesting motive works in opposite directions for both firms: The firm that “owns” the loyal customer increases its price, while its competitor decreases price. For a sufficiently small switching cost, the average price stays approximately constant. The investment motive works in the same direction for both firms: If a firm lowers its price, the chance of keeping or gaining a loyal customer increases, and therefore the continuation value of the firm increases. Thus, the investment motive has a first-order

*Jean-Pierre Dubé is Sigmund E. Edelstone Professor of Marketing (e-mail: jdube@gsb.uchicago.edu), Günter J. Hitsch is Associate Professor of Marketing (e-mail: guntj@gsb.uchicago.edu), and Peter E. Rossi is Joseph T. and Bernice S. Lewis Professor of Marketing and Statistics (e-mail: peter.rossi@chicagogsb.edu), Booth School of Business, University of Chicago.

downward effect on prices. It follows that for a sufficiently small switching cost, the net effect of the harvesting and investment motive is to lower prices.

To avoid any confusion about the implications of Cabral's result, we point out that his use of the term "small" switching cost must be understood with respect to his model: There always exists a positive but possibly tiny switching cost such that average prices decrease. This is unrelated to whether such switching costs are small in the sense of being economically insignificant. Indeed, in our empirical application, we find that equilibrium prices fall even for switching costs that are twice as large as the purchase price.

Finally, we remark on the topic of "computational" versus analytical results in economic theory, a topic brought up by the discussants. In particular, Cabral stresses that analytical results can be more general (if the results are not dependent on specific functional forms) and that the analytical approach can provide intuition for the results. We fully agree with these statements. However, we point out that computational results are useful in situations in which economic theory has not yet produced any analytical results. For example, so far no analytical results exist for the full, empirical model in our article, in which products are differentiated, switching costs are finite, some (but not all) parts of consumer preferences change across periods, and firms cannot discriminate between loyal and nonloyal customers.

We thank our discussants again and end by echoing Cabral's concluding statement: The effect of switching costs on equilibrium prices is ambiguous and thus is an empirical question. We hope that our findings and the preceding discussion inspire more empirical work in this area.

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