International Journal of Industrial Organization 48 (2016) 34–58

Contents lists available at ScienceDirect

International Journal of Industrial Organization

www.elsevier.com/locate/ijio

Consumer referrals

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A R T I C L E I N F O

Article history:
Received 10 August 2015
Revised 14 March 2016
Accepted 2 June 2016
Available online 8 June 2016

JEL Classification:
C7
D4
D8
L1

Keywords:
Consumer referral policy
Word of mouth
Referral reward program
Targeted advertising
Targeted referrals

A B S T R A C T

In many industries, firms reward their customers for making referrals. We analyze a monopoly's optimal policy mix of price, advertising intensity, and referral fee when buyers choose to what extent to refer other consumers to the firm. When the referral fee can be optimally set by the firm, it will charge the standard monopoly price. The firm always advertises less when it uses referrals. We extend the analysis to the case where consumers can target their referrals. In particular, we show that referral targeting could be detrimental for consumers in a low-valuation group.

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1. Introduction

Firms often pay existing customers for referring potential customers to the firms' products or services. For example, DIRECTV's Referral Offer has promised a $100 credit

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http://dx.doi.org/10.1016/j.ijindorg.2016.06.001
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to any customer for referring a friend who signs up for the company's service. Referral policies are adopted in a variety of industries, including banking, health care, web design services, home remodeling, housing, vacation packages, home alarm systems, and high-speed Internet connection. They are used in the recruitment of nurses and technicians, as well as in selling cars, houses, and tickets to sporting events. Private schools, doctors, and daycare centers give out referral bonuses as well.[2] Such referral programs are often seen as "Win/Win/Win" because existing customers, potential customers, and firms all benefit. This is not surprising, given that consumer referrals raise consumer awareness about the product.[3]

How can firms efficiently manage consumer referrals? We ask whether a firm would set a higher or lower price in the presence of consumer referrals. On the one hand, the referral fee adds to the marginal cost of selling the product, which prompts the firm to raise its price. On the other hand, a higher price reduces purchase probability, diminishing referral incentives. It is therefore not clear in which direction the optimal price would move. We also answer the following questions: when would a firm use consumer referrals, would it engage in more or less advertising under referrals, and what are the overall welfare effects of referral policies?

Designing an optimal referral policy is complicated by the interactions among the firm's pricing, advertising, and referral policies. A critical part of our analysis is that we endogenize consumers' decisions about how engaged they wish to be in making referrals. To our knowledge, no other study has taken such a comprehensive approach to developing an analytical model of consumer referrals.

We introduce consumer referrals into a new product market served by a monopoly. The firm has two alternative means of raising consumer awareness about its product. It can inform consumers directly about the existence of the product and its price through advertising, or it can do so indirectly through consumer referrals. Consumers who receive the firm's ads and decide to purchase the product choose the extent to which they refer other consumers. The firm's referral policy provides a monetary reward (referral fee) for each successful referral. Consumers can make multiple referrals at a constant marginal cost. Since referrals are sent independently and at random, in equilibrium there is congestion in referral messages. The firm can manage referral incentives in our model by changing its policy mix (price, advertising intensity, and referral fee).

We first characterize the consumer referral equilibrium for any finite number of referring consumers and any policy mix chosen by the firm (Proposition 1). Considering a large population of consumers, we then analyze the firm's optimal policy and, in

[2] Casual observation of referral policies suggests that referral rewards are usually paid out to existing customers for referring new customers who buy the product. Referral payments are typically made in the form of cash, deposit, gift certificate, bonus points, free product or service, or entry into a lottery.

[3] Recommendations from other people are considered more trustworthy than direct advertising. According to Nielsen's 2012 Global Trust in Advertising Survey of 28,000 Internet respondents from 56 countries, consumers around the world continue to find recommendations from personal acquaintances by far the most credible: 92 percent of respondents trust ("completely" or "somewhat") recommendations from people they know, and 90 percent find these recommendations ("highly" or "somewhat") relevant. In comparison, ads are found trustworthy or relevant by only 30–50 percent of respondents, depending on the media.

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