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The multiple roles of interpersonal communication in new product growth

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ABSTRACT

Interpersonal Communication (IPC), which includes word of mouth, plays an important role in the adoption of new products. Despite the extensive study of the role of IPC at the category level, its role at the brand level has not received its due attention. Using quarterly data on brand-level sales and marketing variables in the SUV category over 10 years, we show that IPC among previous adopters of a brand directly influences the sales of not only the brand itself but also the product category as a whole, which, in turn, indirectly influences brand sales. Additionally, we show that category-level IPC is distinct and separate from brand-level effects. Based on a detailed model-based accounting of IPC effects, we separate the *direct effect* of brand-level IPC on the sales of a brand from its *indirect effect* through product category sales, while allowing for category-level IPC and the effects of marketing variables. We demonstrate the various effects of IPC using a numerical experiment.

1. Introduction

The year 2010 began with the launch of a major new product by Apple: the iPad. While the iPad captured the world's attention, it was only the 24th entrant in the e-book reader market![1] In fact, the very first e-book reader was the Librie, introduced by Sony in 2004–05. The Librie was followed by Sony's Reader in 2006, Samsung's Papyrus and Amazon's Kindle in 2007 and so on (website ref: Wikipedia on e-book, 2012). By the beginning of 2012, forty different companies have introduced e-book readers, thirty of which feature electronic-paper displays (ex: Amazon Kindle) and ten of which feature non-electronic-paper displays (ex: Apple's iPad, Kindle Fire). Interestingly, many of the major product launches occurred in the 2009–10 period, when the e-book reader market was still in its infancy (website ref: ebookreader.com, 2012). Why was that? Why couldn't companies wait until the market reached the growth stage? One reason may be that the firms did not want to be late to exploit the snowballing/cascading effects of Interpersonal Communication (hereafter referred to as IPC for convenience), which includes, among other things, robust word-of-mouth effects and more recent phenomena such as the effects of social networking. IPC has been widely recognized for the important role it plays in the market adoption of a new product. From the perspective of a firm, the snowballing / cascading effects[2] of IPC imply that, as the number of adopters of a brand increases, the rate of future adoptions of that brand also increases. The prospects of exponential growth in sales over time lure firms to launch their brands sooner rather than later, without waiting to see if the product category turns out to be successful or not.

In a recent paper that makes an important contribution to the marketing literature on IPC, Libai, Muller, and Peres (2009) show that IPC among previous adopters of a duopoly brand affect not only the brand's own sales but also the sales of the competing brand. If one were to generalize this point to an oligopoly containing multiple (>2) brands, one would argue that IPC among previous adopters of a certain brand would influence product category sales as a whole (in addition to that brand's own sales). The actual increase in product category sales resulting from a specific brand would depend on the attractiveness of that brand relative to other brands in the category. Therefore, a careful accounting of a brand's IPC must separate its *direct effect* on the brand's own sales from its *indirect effect* through the overall increase in product category sales. Despite the extensive literature on estimating IPC effects in new product growth models,[3]

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[1] Despite having additional features such as e-games (which are not inherent features of an e-book reader), the iPad was considered a serious contender in the e-book reader market. It was launched at the competitive price of $499 in order to aggressively steal shares from Amazon's Kindle (Wall Street Journal, 27th January, 2010).

[2] Such snowballing effects of IPC are distinct from first mover advantages, as will be discussed later.

[3] See Mahajan, Muller, and Bass (1990) and Peres, Muller, and Mahajan (2010) for comprehensive reviews of this literature.

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a careful accounting of a brand's IPC has not been undertaken. Addressing this gap in the literature is one of the purposes of this study.

It is widely acknowledged that IPC is not entirely within the manager's control but happens, in large part, organically among the brand users (i.e., in an exogenous manner). What a brand manager typically does is manage the traditional marketing mix (i.e., price, advertising and distribution) for her brand. However, to optimize her marketing mix spending, the brand manager must still correctly understand and analyze the effects of the marketing mix on her brand's sales relative to the effects of IPC (at both the brand-level and the category-level). Enabling this type of managerial decision-making is another purpose of this study.

The dual objectives of our study are summarized using the following two questions of interest to a brand manager:

(1) Do previous adopters of a brand generate both category-level and brand-level IPC? If so, how do these two types of IPC work together in driving a brand's sales?
(2) How can we infer the impact of IPC on category sales and brand sales in the presence of marketing mix variables that affect new product growth?

Considering the recent rise in the significance of IPC marketing in the business sector (as evidenced by both the market success of books including "The Tipping Point" by Malcolm Gladwell and "The Secrets of IPC Marketing" by George Silverman and the advent of social networking websites including Facebook, Twitter and personal blogs), our study is both valuable and timely to brand managers operating in this environment.

Previous empirical studies focusing on new product growth (see Mahajan et al. (1990) and Peres et al. (2010) for reviews) typically measured IPC at the category level but neglected inter-brand competition and brand-level IPC. Our goal in this paper is to analyze new product growth and the effects of IPC therein while explicitly taking into account the effects of inter-brand competition and, in turn, brand-level IPC.

Next, we explain the difference between category-level and brand-level IPC.

2. Category-level versus brand-level IPC

IPC refers to the interpersonal communication between previous and potential adopters of a product. Such communication may occur directly (e.g., face-to-face, telephone, personal e-mail, personal observation of the product in use) or indirectly through social networks (e.g., online communities such as Facebook and Yahoo discussion groups, professional associations such as the AMA, viral videos on YouTube[4]) (Van den Bulte & Stremersch, 2004). Consumers perceive IPC as a more credible source of information about product quality/fit than company-sponsored communication such as advertising and sales promotions. By enabling potential adopters to learn about product attributes based on the user experiences of previous adopters, IPC helps to reduce consumer uncertainty about the potential benefits and weaknesses of a product. Traditional models of new product growth have assumed IPC effects to operate at the level of the product category only, ignoring IPC effects at the brand level (with the only exceptions being Krishnan, Bass, & Kumar, 2000; Libai et al., 2009; how our study differs from these studies will be explained in the next section).

To differentiate the effects of category-level IPC from the effects of brand-level IPC, we need to recognize two types of brand-level IPC effects. Let us explain this in more detail. Brands within a product category have both shared and unique features. For example, a large display screen and easy access to multimedia are common features that underlie all smart phones (in comparison to traditional mobile phones). However, single-touch access to *YouTube* is a unique feature that distinguishes the Apple iPhone from the BlackBerry[5] and other smart phones. As users sample both the shared and unique features of the iPhone, their IPC will, in turn, involve both types of features. First, to the extent that a user's IPC involves the efficacy of the *common features*, his or her brand-level IPC would influence category-level sales (i.e., through influencing the perceived attractiveness of smart phones in general). We call this the "brand-to-category IPC" effect. Second, to the extent that a user's IPC involves the efficacy of the *unique features* of the iPhone, his or her brand-level IPC would influence brand-level sales (i.e., through influencing the perceived attractiveness of the iPhone in particular). We call this the "brand-to-brand IPC" effect.[6]

In addition to the "brand-to-category IPC" discussed above, there is another type of category-level IPC that is generated from the category *per se* and not from any specific brands. This type of IPC involves information sources such as websites (e.g., Wikipedia) and internet-based social networks (e.g., Facebook), which focus on the product category as opposed to any particular brand. For example, a WSJ article published in 2010 (WSJ, 2010) described e-book readers as a revolutionary category challenging the older category of paper-based books. The Wikipedia website on e-books (website ref: Wikipedia on e-book, 2012) also discusses e-book readers in general as opposed to any specific e-book reader. In addition, yet another website (website ref: Parenthood.com, 2012) discusses how a family should decide between a minivan and an SUV, without referring to any specific brand in either category. This is the type of category-level IPC that is captured by traditional diffusion models such as the Bass model. We call this "category-to-category IPC."

To summarize, we propose three distinct types of IPC. The first type is generated at the brand level but influences the adoption of the category ("brand-to-category IPC"). The second type is generated at the brand level and influences the adoption of that particular brand ("brand-to-brand IPC"). The third type is generated at the category level and influences the adoption of the category ("category-to-category IPC"). Next, we propose a category-cum-brand level growth model that simultaneously accommodates all three types of IPC effects and captures the effects of brand-level marketing variables. Our proposed model nests the Bass model of category-level diffusion as a special case (i.e., when only "category-to-category IPC" is present but "brand-to-category IPC" and "brand-to-brand IPC" are both absent). We estimate our proposed model using quarterly data on brand-level sales, prices, advertising expenditures and distribution in the SUV category.

Before presenting our model, we review the extant literature on the issue of accommodating and measuring different types of IPC effects on new product growth.

[4] A good example of a successful viral marketing campaign is the "Will it Blend?" series of YouTube videos developed by *Blend Tec*, in which George Wright—the VP of Marketing and Sales—was shown pulverizing iPhones, athletic shoes, marbles, Bic lighters etc. The 84 videos posted on YouTube were watched 200 m times and increased sales by 700% for *Blend Tec* blenders.

[5] In their latter models (ex: BlackBerry Torch), BlackBerry added this feature.

[6] Another example pertaining to minivans is the following: By talking to current users of the Mercury Villager minivan, a potential adopter (a) experiences reduced uncertainty about the safety of minivans (as opposed to, say, sedans) and (b) learns more about the unique design features of the Mercury Villager compared to, say, the Nissan Quest. Whereas (a) represents "brand-to-category IPC", (b) represents "brand-to-brand IPC." Similarly, Consumer Reports publish reliability and owner satisfaction ratings on passenger cars and SUVs, which are based on surveys of existing users of particular brands. [http://www.consumerreports.org/cro/cars/new-cars/suvs/index.htm]. Although these reports pertain to different brands, they also provide information at the level of the category by organizing all its constituent brands in one common place. In this sense, Consumer Reports provides both "brand-to-brand IPC" and "brand-to-category IPC."