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The Natural Monopoly effect in brand image associations

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ABSTRACT

The Natural Monopoly is a robust empirical generalisation that describes the tendency for more popular brands to attract light users of the product category. This study shows that this pattern can also explain the underlying 'trade-off' between associations that consumers hold in memory for a specific brand vs. other brands, given the same range of category cues or category entry points (e.g., purchase or consumption situations, core benefits etc.). Specifically, the Natural Monopoly can be extended to explain that consumers with limited knowledge of brands are more likely to memorise associations primarily in relation to the most popular brands of the category, which 'monopolise' category entry points. This is confirmed with broadly consistent results across three data sets, multiple time-periods and a total of six categories (including CPGs, services and mobile applications). As such, this study significantly expands the generalisability of the Natural Monopoly empirical law by showcasing it as a 'tool' to extend knowledge on brand image associations. The results also yield important practical implications for growing a brand's mental availability. For the most popular brands, the outcomes of this study highlight the relevance of reaching out to consumers with limited knowledge of brands within the same category; for the least popular brands, they indicate the importance of building associations with category entry points.

CHINESE ABSTRACT

自然垄断是一个强大的实证概化理论，描述了热门品牌吸引同产品类别中轻度用户的趋势。本研究表明，这种模式也可以解释消费者面对相同的类别提示或类别入口（如购买或消费情景，核心利益等）时，脑中对于特定品牌的印象和其他品牌的潜在的“取舍”。具体来说，自然垄断可以扩展并解释，对于品牌认知有限的消费者更有可能记得该类别里最流行的品牌的联想，而这就“垄断”了类别的入口。这一观点通过三个数据集、多时间段和总共六个产品类别（包括快速消费品、服务和移动应用）的广泛一致结果而得到证实。因此，本研究显著地扩展了“自然垄断”经验法则的广泛性，可以作为有力的工具，为现有的品牌形象关联实证知识再增光彩。研究结果也具有重要的实践意义，有助于增加品牌的心智显著性。对于最受欢迎的品牌，本研究的结果强调了应当去接触对同类品牌认知有限的消费者们；对于最不受欢迎的品牌，文章指出了与类别入口建立联系的重要性。
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1. Introduction

Consider the example of a consumer who hardly purchases soft drinks, but has been tasked with supplying some for a birthday party. Given their limited level of past experience, this consumer will most likely buy one of the most popular brands such as Coke or Pepsi, as opposed to less popular brands such as LA Ice Cola. Thanks to attracting the occasional 'one-off' purchases by consumers such as this party organiser, brands such as Coke and Pepsi gain and retain market share. That is, leading brands attract a disproportionate share of purchases from those consumers who are lighter users (buyers) of the category. This simple and logical mechanism is called the *Natural Monopoly* and is an empirical regularity discovered by McPhee (1963) in radio listening, subsequently detected and examined in buying behaviour (Ehrenberg et al., 2000, 2004).

A handful of studies have examined the Natural Monopoly in different contexts, including: Elberse's study (2008) on video rentals; Chrysochou and Krystallis's (2010) work on wine; Lynn (2013) and Sjostrom et al.'s (2014) research on restaurants and food products, respectively; Scriven et al.'s (2015) paper on leisure activities; and Gruneklee et al.'s (2016) piece on social marketing. However, these studies did not explore the Natural Monopoly in relation to

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non-behavioural aspects of consumption. Additionally, in most instances it was simply detected alongside other empirical patterns such as the Double Jeopardy pattern and the Duplication of Purchase Law (Ehrenberg et al., 2000, 2004; Sharp et al., 2012); it was not the main focus of the study. Nonetheless, the Natural Monopoly yields explanatory power, especially regarding the strategic importance of light users (or buyers) of a certain category for the pursuit of growth and the improvement of market performance.

In line with the above rationale, this study revisits the Natural Monopoly and extends its reach as an empirical marketing law by applying it to the analysis of *brand image associations*. Brand image associations capture the range of thoughts, ideas and perceptions that consumers associate with brands in their mind (Keller, 1993). This research demonstrates that it is possible to use the Natural Monopoly as a 'tool' to interpret the underlying 'trade-off' between associations that consumers hold in memory for a specific brand vs. other brands in the same category, given the same range of category cues or *category entry points* – i.e., purchase or consumption situations, core benefits etc. (Romaniuk and Sharp, 2016). In more detail, the present research draws upon the Natural Monopoly to address the following key research questions: *Do popular brands monopolise most associations with category entry points? If so, how can brands that are already associated with most (or all) category entry points pursue growth, i.e. improve the chances of retrieval from memory in buying situations?*

To answer these questions, this study analyses three large data sets, covering multiple time-periods and six categories (including CPGs, services and 'new' digital offerings such as mobile applications). We use a combination of descriptive statistical analyses and regression techniques (repeated for all sets of data) to detect and interpret the Natural Monopoly pattern in brand image associations, focussing on the analysis of two metrics: *mental market share*, i.e. a brand's percentage of associations out of the total associations for all brands in the category (derived from Romaniuk, 2013); and *category association rate*, i.e. the ratio between the overall number of associations for all brands in the category and the number of consumers who could retrieve the brand from memory (derived from Stocchi et al., 2016).

The contribution of this study is twofold. First, it revisits an important marketing law, showing the power of empirically based knowledge in resolving complex problems concerning market place behaviour. Specifically, this research adds to the literature on the Natural Monopoly pattern, which thus far has primarily concerned itself with behavioural matters. In contrast, this study focusses on the analysis of a cognitive aspect of consumption, i.e. brand image associations. Second, from a practical perspective, this research offers some clear guidelines that support brand management strategies, especially in relation to growing a brand's mental availability. A key 'take-away' from this work is the fact that, for the most popular brands, increases in mental availability can be attained by reaching out to consumers with limited knowledge of brands within the same category. This is because these consumers are likely to retrieve popular brands from memory and rely on them in the context of decision-making, which will ultimately enhance purchase probabilities. In contrast, managers of less popular brands should focus on building and maintaining associations with CEPs. This will assist them with building up, over time, associations in consumer memory, enhancing mental availability and thus brand purchase probabilities.

2. Background

2.1. The Natural Monopoly

In 'Formal theories of mass behaviour,' McPhee (1963) found that the audience of less popular radio programs and announcers mostly consisted of those who were heavy radio listeners. Conversely, light listeners showed the tendency to listen to the most popular programs and announcers. McPhee (1963) labelled this pattern *Natural Monopoly*, to explain the ways in which popular offerings 'monopolise' light users of those offerings. This seminal study suggested that, as an empirical law, the Natural Monopoly offers some key practical implications in relation to the analysis of sales concentration. In more detail, it reveals the strategic importance of light users, which are useful targets to maintain and enhance the popularity of certain offerings within a given competitive setting.

After McPhee's (1963) work, the pattern was hardly researched for nearly four decades. Ehrenberg et al. (2000; 2004) resumed work on the Natural Monopoly and examined it in the context of repeat purchase markets, revealing the following. Brands with a *high* market share (i.e., a high proportion of sales in comparison to the other brands in the same category) typically show a *lower* category buying rate (i.e., a lower frequency of category purchases made by the brand's buyers) due to the 'monopolising' of light category buyers (i.e., consumers who purchase from the category very infrequently). Similarly, Elberse (2008) found that monthly DVD rental selections of light users were primarily popular releases, while the heaviest segment of customers were more inclined to rent less popular releases along with popular ones. In the case of wine, Chrysochou and Krystallis (2010) compared the purchase patterns of light and heavy wine buyers. Interestingly, their results showed counterintuitive tendencies with respect to the Natural Monopoly. That is, the authors found that the consumers who buy wine less frequently choose small, lesser-known brands; thus technically detecting an opposite effect. Nevertheless, the cut off point that the authors used to classify light and heavy buyers was somewhat discretionary (i.e., once a week for heavy and once a month for light), and was not based on the underlying frequency of purchase distribution as commonly done in other studies (c.f. Ehrenberg et al., 2000, 2004). Arguably, this analytical choice could have influenced the findings. It is also possible that the counterintuitive outcome emerged from the unique nature of the wine market in Greece (context of the analysis), which is characterised by many small winemakers.

More recently, the Natural Monopoly pattern featured in a limited number of additional studies, albeit without being the focus of the analysis and thus emerging as a rather incidental finding. For example, the focus of Bassi (2011) was on examining the methods of estimation procedure for the Dirichlet Model (see Goodhardt et al., 1984; and Sharp et al., 2012). However, the results of the analysis of the Italian beer market showed that the frequency with which consumers purchased beer increased as the penetration of individual beer brands decreased, indicating the existence of a Natural Monopoly effect. Lynn (2013) examined patterns in the choice of restaurants in the US and found that larger and more popular restaurants attracted a greater proportion of light category users than their smaller counterparts. Specifically, the aim of Lynn's research was to examine consumer choice for different types of restaurants, including: hamburger and pizza quick service restaurants; fast casual restaurants; full service casual restaurants; and table service restaurants. For all types of restaurants considered, the results consistently showed the Natural Monopoly effect, confirming that the law-like pattern applies to the hospitality industry. Similarly, the main purpose of Scriven et al.'s (2015) research was to examine the competitive structure of leisure market and to determine whether individuals engage with leisure activities in a predictable manner. The authors found that the most popular choice of leisure activities (e.g., watching television and spending time with family) attracted people with limited free time (i.e., technically the 'light users' of leisure activities), highlighting the existence of the Natural Monopoly pattern. Gruneklee et al. (2016) researched physical activity and found that individuals who exercise infrequently tend to prefer more popular activities such as walking, a finding that