

Anatomy of the Long Tail: Ordinary People with Extraordinary Tastes

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ABSTRACT

The success of “infinite-inventory” retailers such as Amazon.com and Netflix has been ascribed to a “long tail” phenomenon. To wit, while the majority of their inventory is not in high demand, in aggregate these “worst sellers,” unavailable at limited-inventory competitors, generate a significant fraction of total revenue. The long tail phenomenon, however, is in principle consistent with two fundamentally different theories. The first, and more popular hypothesis, is that a majority of consumers consistently follow the crowds and only a minority have any interest in niche content; the second hypothesis is that everyone is a bit eccentric, consuming both popular and specialty products. Based on examining extensive data on user preferences for movies, music, Web search, and Web browsing, we find overwhelming support for the latter theory. However, the observed eccentricity is much less than what is predicted by a fully random model whereby every consumer makes his product choices independently and proportional to product popularity; so consumers do indeed exhibit at least some a priori propensity toward either the popular or the exotic.

Our findings thus suggest an additional factor in the success of infinite-inventory retailers, namely, that tail availability may boost head sales by offering consumers the convenience of “one-stop shopping” for both their mainstream and niche interests. This hypothesis is further supported by our theoretical analysis that presents a simple model in which shared inventory stores, such as Amazon Marketplace, gain a clear advantage by satisfying tail demand, helping to explain the emergence and increasing popularity of such retail arrangements. Hence, we believe that the return-on-investment (ROI) of niche products goes beyond direct revenue, extending to second-order gains associated with increased consumer satisfaction and repeat patronage. More generally, our findings call into question the conventional wisdom that specialty products only appeal to a minority of consumers.

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1. INTRODUCTION

The explosion of electronic commerce has opened the door to so-called “infinite-inventory” retailers, such as Amazon.com, Netflix, and the iTunes Music Store, which offer an order of magnitude more items than their brick-and-mortar counterparts [2]. The resulting *long tail markets* [1, 2] have been found to exhibit two near-universal properties: (1) the vast majority of products are “misses,” appealing to only a relatively small group of people; and (2) these “worst-sellers” in aggregate account for a sizable fraction of total consumption. For example, 30% of Amazon.com’s sales and 25% of Netflix’s sales are for items not available in the largest offline retail stores [2]. Based on these empirical observations, the success of online retailers has been largely attributed to the lucrative, and previously untapped, “tail markets.”

The long tail phenomenon, however, is in principle consistent with two fundamentally different hypotheses. The first, and generally accepted theory, is that a majority of consumers prefer popular offerings while only a minority seek niche content; the second hypothesis is that everyone is a bit eccentric, consuming both popular and specialty products. These two theories, importantly, predict substantively different tradeoffs between inventory size and user satisfaction. In the former case, a small inventory of popular items would satisfy most people nearly all of the time, while in the latter, such an inventory would frustrate most people at least some of the time. Thus, differentiating between the two is key to developing sound business strategies.

To distinguish between these possible alternatives, we examine extensive data on user preferences for movies, music, Web search, and Web browsing. In all of these domains, we find overwhelming evidence that nearly everyone is at least a bit eccentric. Our findings suggest an additional factor for the success of infinite-inventory retailers, that is, tail availability may boost head sales by offering consumers the convenience of “one-stop shopping” for both their mainstream

