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Multi-level markets and incentives for information goods

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Abstract

The free-rider phenomenon which impedes the marketing of information goods is conventionally countered by copyright protection regulations and technology. Alternative ways to market information goods, in particular through systems based on the super-distribution of a good from buyer to buyer, have recently raised some interest. Some of them mimic peer-to-peer file-sharing networks, while advanced ones are mechanisms falling into the category of multi-level markets. Motivated by this, the present paper develops a general model for the monetary flux in a multi-level market, quantitatively describing the incentives that buyers receive through resale revenues. Based on it, some qualitative questions pertaining to a profitable marketing of information goods are discussed.

JEL classification: C51; C67; D4

Keywords: Information good; Multi-level market; Virtual good; Incentive; Copyright protection

1. Introduction

Information goods share the attributes of transferability and non-rivalry with public goods, and additionally are durable, i.e., show no wear out by usage or time. Like with a private good however, original creation can be very costly. The marketing of

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information goods is plagued by the problem of free riders, e.g., illegal copying and file-sharing on the Internet or over peer-to-peer networks. Conventional ways to counter "piracy" are copyright protection and digital rights management (DRM) measures. This practise raises controversy due to economical, policy, and pragmatic reasons. The literature on the economical effects of illegal copying and file-sharing is numerous, see, e.g., Varian (2000) and the references in Gayer and Shy (2003a). Oberholzer and Strumpf (2004) present an econometric study indicating that the effect of illegal file-sharing on record sales is negligible. Other studies support copyright protection, for instance Kinokuni (2003) shows theoretically that publisher's profits are maximised by a policy of restricting the number of copies to an optimal level if the distribution by (illegal) copies is more efficient than distribution by originals. Domon and Yamazaki (2004) examine the effects of illegal file-sharing on transaction and search costs from the perspective of optimal monopoly pricing. Lea and Hall (2004) survey the intellectual property controversy and the conflict with public interest. Yoon (2002) tries to determine an optimal level of copy protection, considering social welfare losses due to underutilisation and underproduction. Negative implications of copy-protection and DRM from a consumer perspective are considered by Mulligan et al. (2003) and Fetscherin (2003), while Schmidt et al. (2004) indicate technological challenges to DRM. Byers et al. (2004) elicit the multifarious vulnerabilities of copy-protection in the movie production and distribution process. The alternative of hardware taxation is investigated in Gayer and Shy (2003b).

In recent years, the content producing and marketing industries have undergone changes with the adoption of the Internet as a distribution channel, as already suggested in Shapiro and Varian (1999). The term *virtual goods*, coined by Aichroth and Hasselbach (2003), is used in information science for information goods in intangible, digital form, which are distributed through electronic networks, and we adopt it from now on. A current trend is to mimic the peer-to-peer (P2P) distribution channels which are commonly used by free riders for the marketing of virtual goods. In these approaches based on super distribution of goods from consumer to consumer, marginal costs for content distribution become negligible. Gayer and Shy (2003a) analyse how publishers can utilise P2P networks for the distribution of virtual goods. Antoniadis et al. (2004) point to economic inefficacies of P2P networks and suggest that incentives for participation may acquire importance.

The combination of P2P distribution with ideas derived from network marketing has recently led to the design of new market mechanisms as actual alternatives to copy-protection and DRM. Their purport is a successful marketing of virtual goods even in the presence of freely available versions. They are based on incentives buyers receive upon reselling the good, while concurrently yielding a remuneration to its publisher.

Networked and multi-level marketing schemes are diversified. To be specific, the present paper focuses on a market with the following characteristics. The *originator* of the good is the monopolist holding the copyright for it and determining the sales and resale price for its legal distribution. Upon acquiring the good, a buyer also receives the right to resell it. Buyers and resellers are subsumed under the term *agents*. For each resale, part of the resale price is paid as a commission to the reseller, which is the economical incentive discriminating the legal version of the good from the free one, while the rest goes to a *collector* who may be a public agency collecting artist fees, a third business party, or identical with the originator. We call such a scheme applied to virtual goods and facilitated by electronic networks a *multi-level incentive management (MLIM) system*. The first MLIM