



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Dynamic Informative Advertising of New Experience Goods

Alexander E. Saak

Research Fellow

Markets, Trade, and Institutions Division
International Food Policy Research Institute

2033 K Street, NW

Washington, DC 20006-1002 USA

e-mail: A.Saak@cgiar.org

***Poster prepared for presentation at the Agricultural & Applied Economics Association's 2011
AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July 24-26, 2011***

Copyright 2011 by Alexander E. Saak. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.



INTERNATIONAL FOOD POLICY
RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty
Supported by the CGIAR

Dynamic Informative Advertising with Learning by Purchasing

Alexander E. Saak

International Food Policy Research Institute

Introduction

Information content of advertisements often goes beyond product existence and price, and can complement or substitute for learning by purchasing and trying the product. Advertising that complements learning by purchasing is ads for drugs that describe the benefits and likely users and the most common or severe side effects; advertising that substitutes for learning-by-purchasing is free product sampling.

Do firms always have incentives to provide detailed product information and facilitate consumer learning in such ways? We study a dynamic model of informative advertising for a new nondurable experience good, asking the following questions: When does the seller offer advertising that complements or substitutes for learning-by-purchasing? How does advertising intensity vary over time? Are consumers better informed as a result of advertising? How does advertising affect prices? What about its effect on consumer and overall welfare?

Model

Time: continuous, infinite horizon; r is discount rate

Seller: single nonstorable, nonreturnable product to risk-neutral consumers with unit demands; constant unit production cost $k \geq 0$.

Buyers: idiosyncratic (but fixed over time) WTP for the product θ , but it is initially unknown (experience good); θ are drawn from $F(\theta)$

Learning: Informative signal arrives to each consumer at a Poisson rate

$\lambda + x(t)$, if she purchases the product in a time interval of length dt

$\gamma x(t)$, if she does not purchase the product in a time interval of length dt ,

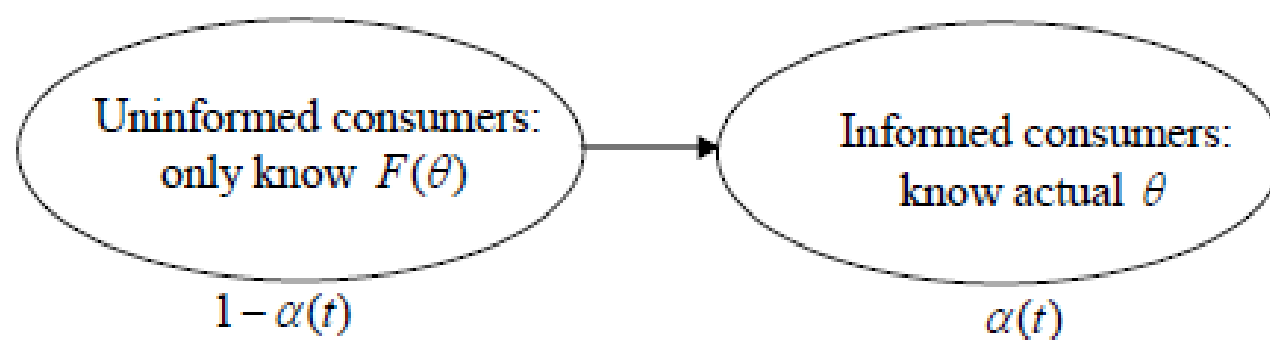
where $\lambda > 0$ is the exogenous rate of learning-by-purchasing,

$x(t) \geq 0$ is the advertising intensity that is controlled by the seller,

$\gamma \in [0,1]$ is the degree of substitutability between learning from advertising and consumption experience: $\gamma = 0$ is TV advertising and $\gamma = 1$ is free samples;

$c(x(t))$ is advertising cost function;

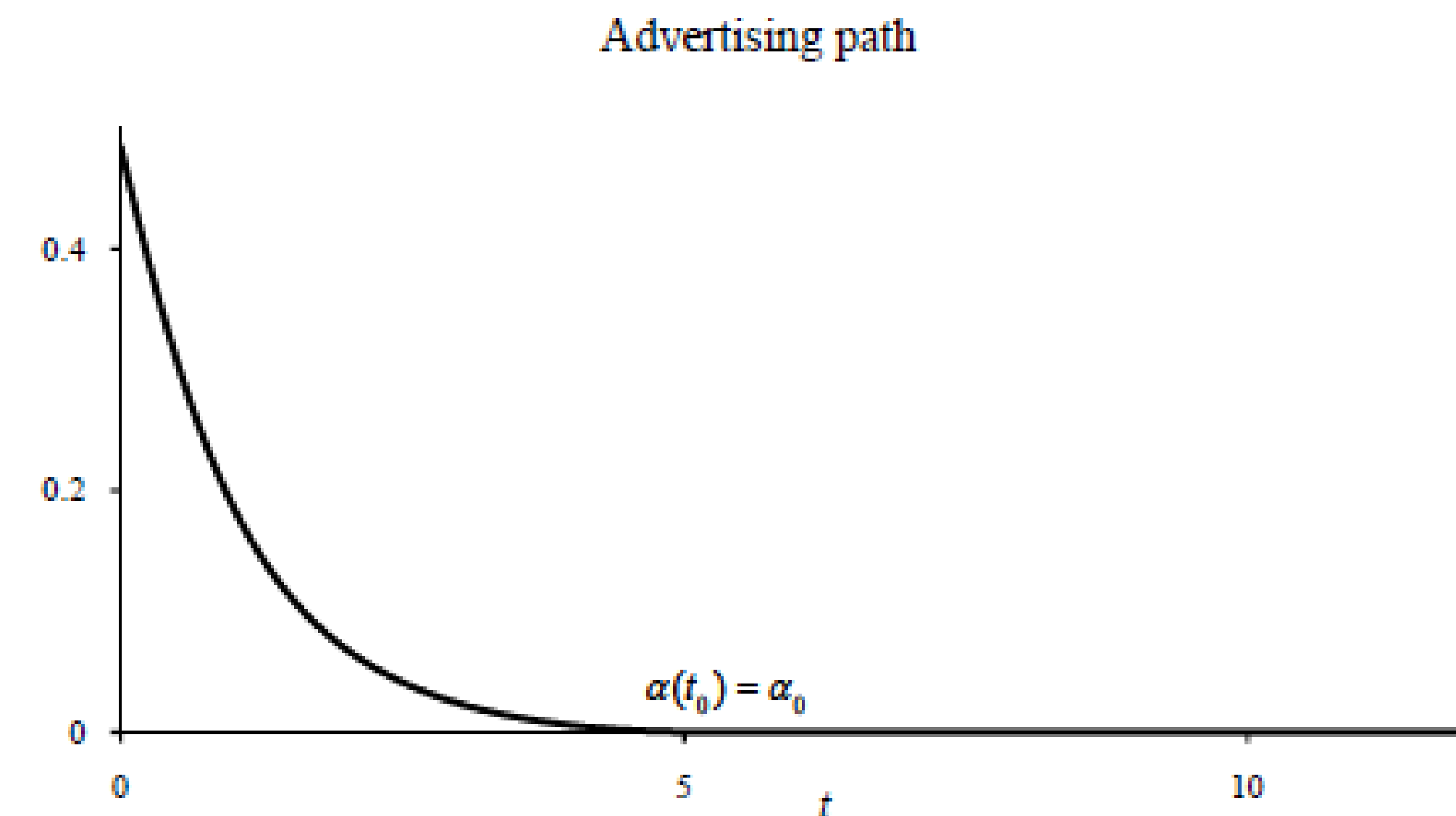
$\alpha(t) \in [0,1]$ denote the share of consumers that are informed at time t



Contact Information

Please contact me at A.Saak@cgiar.org

Advertising that complements learning-by-purchasing



Price paths with and without advertising

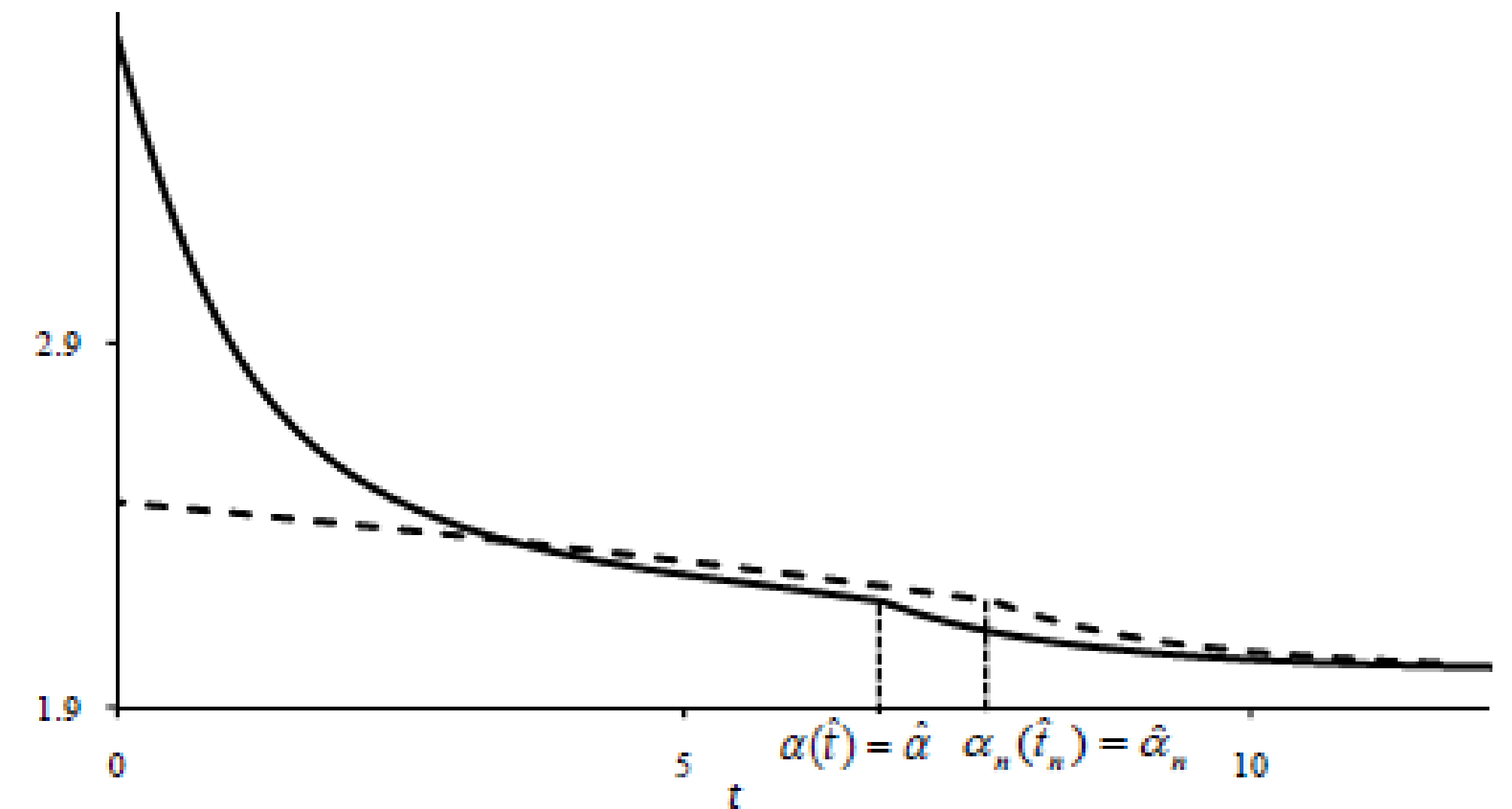
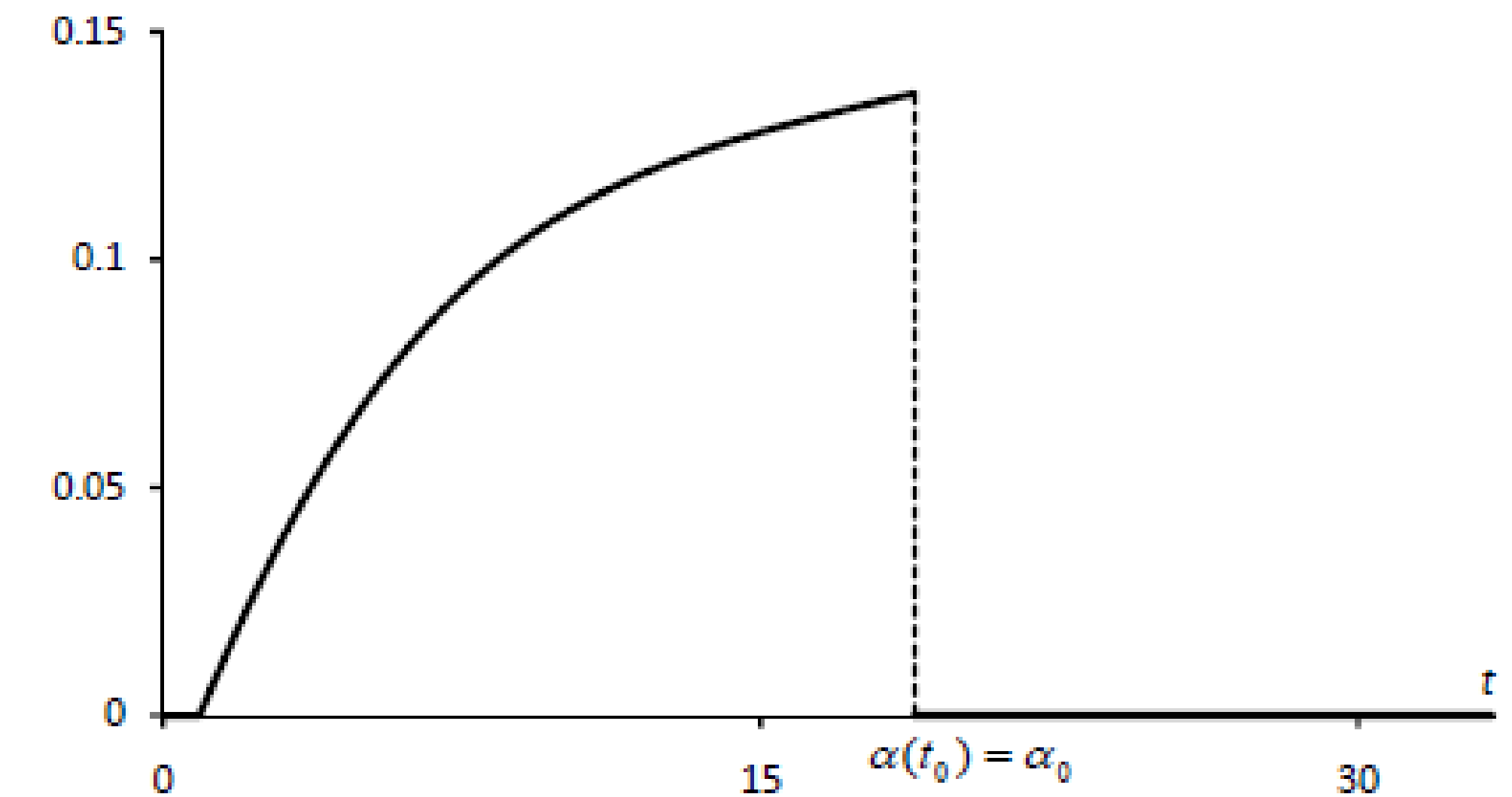


FIGURE 1. Mass market

Advertising path



Price paths with and without advertising

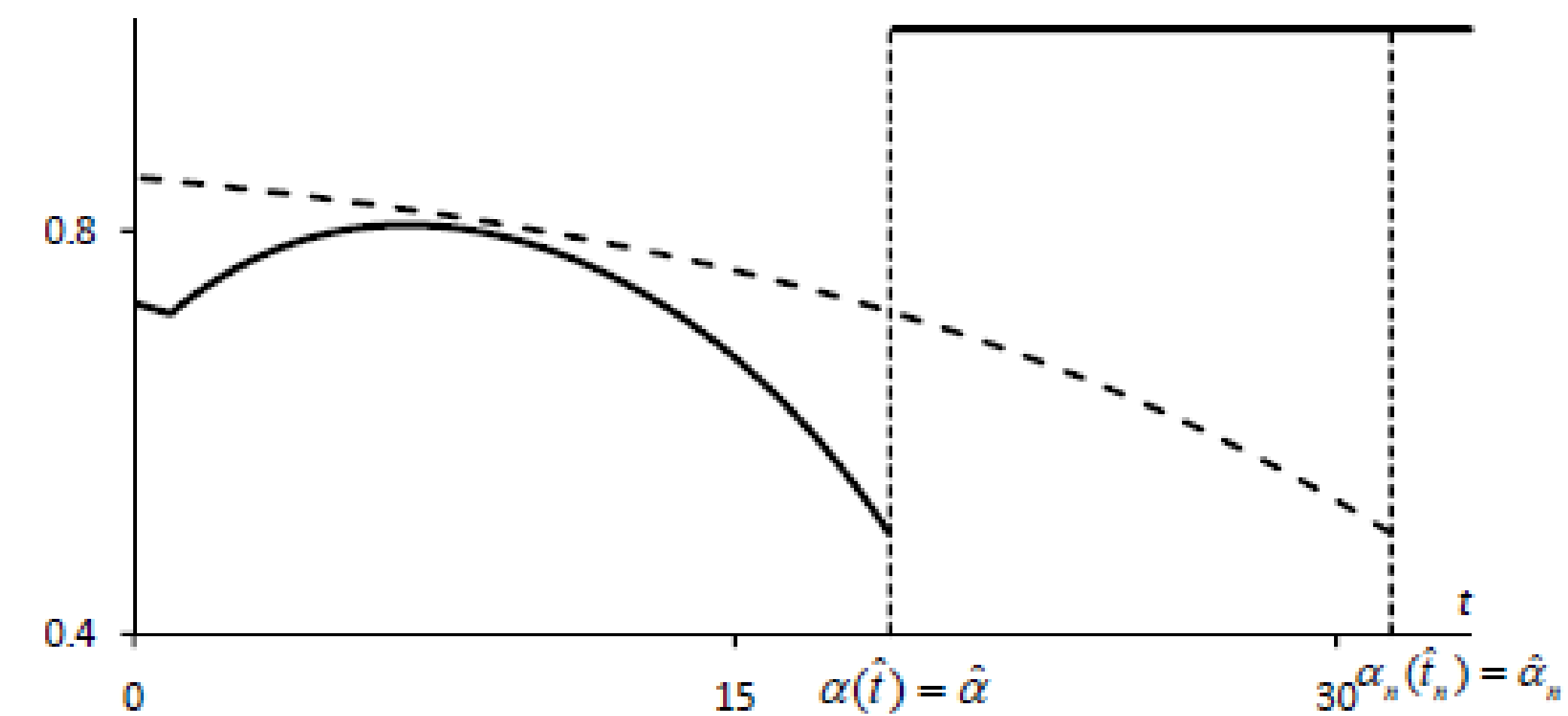


FIGURE 2. Niche market with low cost

Conclusions

In this paper, we have analyzed the advertising and pricing policies of a monopolist in a model of advertising that helps consumers learn their valuation for an experience good. We have shown that in a mass market with sufficiently low discount rate and net average consumer valuation, the equilibrium advertising intensity falls over time. However, the monopolist does not necessarily advertise more in the beginning when most consumers are in the process of learning their preferences for the good. In particular, in a niche market, the path of advertising intensity can be U-shaped during the early stages, or bell-shaped depending on whether advertising complements or substitutes for learning-by-purchasing.

We have also compared the learning outcomes, prices, and welfare in equilibrium with advertising vis-à-vis equilibrium without advertising. Although advertising that provides little information to non-purchasing buyers always accelerates aggregate learning, advertising that provides information to all buyers may lead to less learning-by-purchasing and temporarily slow down the learning process. The effect of advertising on prices is ambiguous. A general property is that advertising increases prices at least for some time before the equilibrium price converges to the long-run price. Nonetheless, advertising raises the present value of consumer welfare as uninformed buyers are more likely to become informed while any effects of advertising on prices eventually vanish. Yet, the present value of social surpluses may be reduced by advertising due to excessive advertising in the future that lessens the value of information today.

Our modeling strategy can also be used to investigate the *evolution* of an optimal marketing mix between advertising that substitutes and complements learning-by-purchasing. This can be done by letting the advertising cost $c(x, \gamma)$ be a function of the advertising rate x and the degree of substitutability between learning from advertising and purchasing γ , and allowing the seller to choose γ and send advertising messages with different levels of γ . Our analysis suggests that advertising that complements learning-by-purchasing will be used in mass markets. However, in the case of a niche market, there will be a shift from advertising that complements experience to advertising that substitutes for learning-by-purchasing as the market matures. An empirical investigation of how the intensity and content of informative advertising for newly launched nondurable experience goods change over time is desirable (Anderson et al. 2010).

Bibliography

- Anderson, S., and R. Renault. (2006) "Advertising Content." *American Economic Review* 96: 93-113.
- Anderson, S., F. Ciliberto, J. Liaukonyte, and R. Renault. (2010) "Push-Me Pull-You: Comparative Advertising in the OTC Analgesics Industry." 11th CEPR Conference on Applied Industrial Organization.
- Bawa, K., and R. Shoemaker. (2004) "The Effects of Free Sample Promotions on Incremental Brand Sales." *Marketing Science* 23: 345-363.
- Bergemann, D., and J. Valimaki. (2006) "Dynamic Pricing of New Experience Goods." *Journal of Political Economy* 114: 713-743.
- Heiman, A., B. McWilliams, Z. Shen, and D. Zilberman. (2001) "Learning and Forgetting: Modeling Optimal Product Sampling Over Time." *Management Science* 47: 523-546.
- Johnson, J., and D. Myatt. (2006) "On the Simple Economics of Advertising, Marketing, and Product Design." *American Economic Review* 96: 756-84.
- Kempf, D. and R. Laczniak. (2001) "Advertising's Influence on Subsequent Product Trial Processing." *Journal of Advertising* 30: 27-38.