

The promotional activities of pharmaceutical companies are regularly the target of criticism. Certain commentators imply that these businesses as a group devote too many resources to the promotion of their products, at the expense of their investments in research and development (R&D).¹ Others maintain that these promotional activities alter the prescribing habits of doctors, which leads to a needless or even harmful rise in the consumption of drugs.² Do these criticisms stand up to scrutiny?

WHY SPEND MONEY ON PROMOTION?

According to available estimates, pharmaceutical companies in the United States spent over 24 billion dollars on all kinds of promotional activities in 2010.³ This amount represents around 13% of the industry's income from sales in that country over the course of the year. Pharmaceutical companies' promotional activities take several forms: representatives' meetings with doctors, product sample distribution, advertising in medical science journals, sponsorship of health conferences and events, etc.

In Canada as elsewhere, pharmaceutical promotional activities are primarily aimed at attending physicians since they are the only people authorized to prescribe drugs. The largest part of the promotional activities of pharmaceutical companies aims first to inform doctors of the specific characteristics of each new drug and to convince them that it is the best product available on the market.⁴

In this sense, pharmaceutical companies are no different from businesses operating in other sectors of the economy. However, spreading information is clearly more important in the pharmaceutical field. Indeed, a drug is only useful insofar as its attributes are known. Obviously, doctors are more influenced by pharmaceutical promotion when it is backed by solid scientific evidence.⁵

Unlike other products whose functions are obvious, two virtually identical pills can have opposite medicinal effects, or be intended to treat completely different health conditions. In the process that goes from the design to the marketing of a drug, the transmission of information about its effects is therefore just as crucial

as the addition of each of the ingredients that make up its chemical composition.

DOES PROMOTIONAL SPENDING COME AT THE EXPENSE OF R&D?

Before hoping to be able to promote a drug, it is necessary for a pharmaceutical company's R&D phase to have produced results.

It is recognized that R&D in the pharmaceutical sector is a long, expensive, and risky process. Out of 10,000 molecules studied, only one will generally be approved by government regulatory authorities and then enter the market. On average, it takes 10 to 15 years⁶ of research and 1.2 billion dollars of investments in order to develop a new drug.⁷ Of all the drugs that are marketed, only 20% generate sufficient sales revenue to cover average R&D costs.⁸

In this context, it follows that there is a strong incentive to promote those drugs that are most likely to provide a return on R&D investments, which happens to coincide with those whose effectiveness is backed up by the most convincing scientific evidence.⁹

The profits that result are crucial, for they are what encourage pharmaceutical companies to pursue R&D investments in order to develop new drugs. Research confirms that higher promotional expenses are associated with the entry of a greater number of pharmaceutical products into the clinical trial phase, especially when it comes to chronic diseases.¹⁰

An analysis of the American data also confirms the existence of a link of complementarity between promotional expenses and

1. Marc-André Gagnon and Joel Lexchin, "The Cost of Pushing Pills: A New Estimate of Pharmaceutical Promotion Expenditures in the United States," *PLoS Medicine*, Vol. 5 (2008), No. 1, p. 32.

2. See: Audrey Balay-Karperien, Norman J. Temple and Joel Lexchin, "The Marketing of Drugs: How Drug Companies Manipulate the Prescribing Habits of Doctors" in Norman J. Temple and Andrew Thompson (ed.), *Excessive Medical Spending: Facing the challenge*. Radcliffe, 2007.

3. By including the retail value of free samples distributed, which accounts for more than half of this sum. Ramesh Krishnan and Yilian Yuan, *DTC Investment in the Pharmaceutical Industry - Current Trends*, IMS Health, April 2011, p. 5.

4. Keith B. Leffler, "Persuasion or Information? The Economics of Prescription Drug Advertising," *Journal of Law and Economics*, Vol. 24 (1981), No. 1, pp. 45-74; Fünsun F. Gönül, Franklin Carter, Elina Petrova and Kannan Srinivasan, "Promotion of Prescription Drugs and Its Impact on Physicians' Choice Behavior," *Journal of Marketing*, Vol. 65 (2001), No. 3, pp. 79-90; Pierre Azoulay, "Do Pharmaceutical Sales Respond to Scientific Evidence?" *Journal of Economics & Management Strategy*, Vol. 11 (2002), No. 4, pp. 551-594.

5. Sriram Venkataraman and Stefan Stremersch, "The Debate on Influencing Doctors' Decisions: Are Drug Characteristics the Missing Link?" *Management Science*, Vol. 53 (2007), No. 11, pp. 1688-1701.

6. Pharmaceutical Research and Manufacturers of America, *Drug Discovery and Development: Understanding the R&D Process*, February 2007, p. 1.

7. Christopher Paul Adams and Van Vu Brantne, "Spending on New Drug Development," *Health Economics*, Vol. 19 (2010), No. 2, pp. 130-141.

8. John A. Vernon, Joseph H. Golec and Joseph A. DiMasi, "Drug Development Costs When Financial Risk is Measured Using the Fama-French Three-Factor Model," *Health Economics*, Vol. 19 (2010), No. 8, p. 1004.

9. Ernst R. Berndt, Ashoke Bhattacharjya, David N. Mishol, Almudena Arcelus and Thomas Lasky, "An Analysis of the Diffusion of New Antidepressants: Variety, Quality, and Marketing Efforts," *Journal of Mental Health Policy and Economics*, Vol. 5 (2002), No. 1, pp. 3-19.

10. Wingham Jacqueline Kwong and Edward C. Norton, "The Effect of Advertising on Pharmaceutical Innovation," *Review of Industrial Organization*, Vol. 31 (2007), No. 3, pp. 221-236.

R&D expenses in the pharmaceutical industry.¹¹ As shown in Figure 1, promotional expenses tend to increase in parallel with research expenses. The industry would therefore not benefit from more resources for R&D if promotional expenses were reduced—quite the opposite.

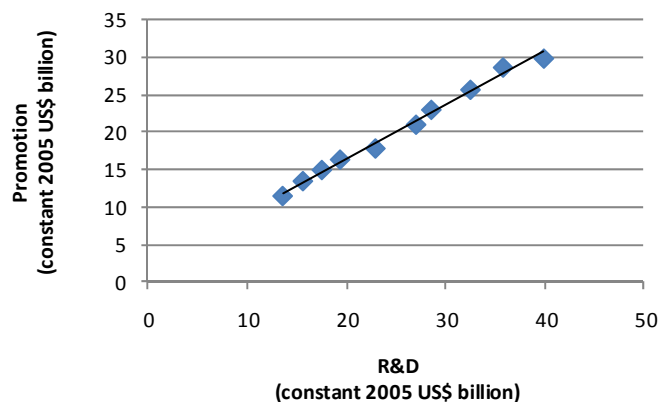
ARE PROMOTIONAL ACTIVITIES USEFUL?

Another criticism often levelled against pharmaceutical promotion is that it leads to an undue increase in the consumption of prescription drugs. Empirical studies, however, are not all in agreement about the impact of pharmaceutical promotion on the volume of drugs prescribed by doctors.² Furthermore, there is no indication that a greater volume of prescriptions by doctors would come at the expense of the wellbeing of the population.¹³

On the contrary, given the scope of the listed benefits of prescription drugs on patients' health,¹⁴ an increase in the volume of prescriptions could prove very useful in treating certain health conditions that are currently misdiagnosed or inadequately treated. Numerous studies have in fact confirmed that promotion, and especially television advertising, contributes to an increase in the number of people diagnosed with certain health problems (depression, high cholesterol, arthritis, etc.) who take medication.¹⁵

Far from leading to unneeded prescriptions, certain promotional practices instead have the effect of helping doctors find the right drugs for their patients. For example, researchers maintain that free drug samples given to doctors often allow them to provide a better diagnosis of their patients' health conditions and therefore to prescribe the medication that is best suited to treating those conditions.¹⁶

Figure 1
Relationship between the promotional expenses and R&D expenses of pharmaceutical companies in the United States (1996-2005)



Sources: Julie M. Donohue, Marisa Cevasco and Meredith B. Rosenthal, "A Decade of Direct-to-Consumer Advertising of Prescription Drugs," *New England Journal of Medicine*, vol. 357 (2007), no 7, p. 676; PhRMA, *Pharmaceutical Industry Profile*, 2011.

CONCLUSION

In the final analysis, the lessons of economic science allow us to appreciate the usefulness of the pharmaceutical industry's promotional activities. By supplying information about the characteristics and the expected effects of drugs, promotional expenses force companies to continually improve the quality of their products if they do not want to fall behind their competitors. Above all, by allowing R&D investments to turn a profit, pharmaceutical promotion constitutes an important vehicle for innovation.

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13. Paul H. Rubin, "Pharmaceutical Marketing: Medical and Industry Biases," *Journal of Pharmaceutical Finance, Economics, and Policy*, Vol. 13 (2004), No. 2, pp. 65-78.

14. Frank Lichtenberg, "The Impact of New Drug Launches on Longevity: Evidence from Longitudinal Disease-Level Data from 52 countries, 1982-2001," *International Journal of Healthcare Finance and Economics*, Vol. 5 (2005), No. 1, pp. 47-73; David M. Cutler, Genia Long, Ernst R. Berndt, Jimmy Royer, Andrée-Anne Fournier, Alicia Sasser and Pierre Crémieux, "The Value of Antihypertensive Drugs: A Perspective on Medical Innovation," *Health Affairs*, Vol. 26 (2007), No. 1, pp. 97-110; Pierre-Yves Crémieux, Marie-Claude Meilleur, Pierre Ouellette, Patrick Petit, Martin Zelder and Ken Potvin, "Public and Private Pharmaceutical Spending As Determinants of Health Outcomes in Canada," *Health Economics*, Vol. 14 (2005), No. 2, pp. 107-116.

15. See especially: Julie M. Donohue, Ernst R. Berndt, Meredith Rosenthal, Arnold M. Epstein and Richard G. Frank, "Effects of Pharmaceutical Promotion on Adherence to the Treatment Guidelines for Depression," *Medical Care*, Vol. 42 (2004), No. 12, pp. 1176-1184; John E. Calfee, Clifford Winston and Randolph Stempki, "Direct-to-Consumer Advertising and the Demand for Cholesterol-Reducing Drugs," *Journal of Law and Economics*, Vol. 45, No. 52, part 2, pp. 673-690; W. David Bradford, Andrew N. Kleit, Paul J. Nietert and Steven Ornstein, "The Effect of Direct to Consumer Television Advertising on the Timing of Treatment," *Economic Inquiry*, Vol. 48 (2010), No. 2, pp. 306-322.

16. Kissan Joseph and Murali Mantrala, "A Model of the Role of Free Drug Samples in Physicians' Prescription Decisions," *Marketing Letters*, Vol. 20 (2009), No. 1, pp. 15-29.



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