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Competitive Package Sizing and Shrinkflation

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Abstract

We consider an oligopolistic market with two symmetric suppliers (brands) A and B that sell substitutable products. We show that a uniform price and package-size equilibrium exists when products are sufficiently substitutable. Following a cost increase, however, brand B adheres to the price equilibrium, while brand A deviates by adjusting package size while holding the price fixed. Consumers are segmented into rational consumers, who always compare unit prices, and trusting consumers, who assume they receive the same value for the same price. We analyze different market configurations to determine when brand A only, brand B only, both, or neither benefits from brand A's deviation from the price equilibrium. We also examine conditions under which brand B shrinkflates the product to increase its market share by taking advantage of trusting consumers.

Keywords
Package Sizing, Shrinkflation, Supply Chain Management, Game Theory and Pricing.

Biographies
Armağan Özbilge is an Assistant Professor of Management Science & Information Systems at Faculty of Management, Dalhousie University. He earned his Ph.D. in Management Science from McMaster University in 2021. His research lies at the intersection of sustainable operations, supply chain management, and omnichannel retailing, with a particular focus on food waste, charitable giving, perishable inventory management, and pricing. Using analytical modeling, he studies how operational decisions and policies—such as tax incentives and return policies—shape profitability, waste, and social welfare outcomes. His work has been published in leading journals including Production and Operations Management, European Journal of Operational Research, and IEEE Transactions on Engineering Management. He has also contributed to applied policy reports such as the Canadian Food Sentiment Index. Dr. Özbilge's research is interdisciplinary and collaborative, engaging local, provincial, and federal charitable organizations. His work has been supported by competitive grants, including funding from the Social Sciences and Humanities Research Council (SSHRC), and has been featured in national media outlets. He previously served as Social Media Coordinator of the OR/MS Tomorrow community of INFORMS, has contributed to peer review as an ad hoc reviewer for leading journals, and currently serves as a chair at INFORMS Junior Faculty Interest Group forum meetings.

Sylvain Charlebois conducts research in the broad area of food distribution, security and safety. He has written four books and many peer-reviewed and scientific articles—over 500 during his career. His research has been featured in

newspapers that include *The Economist*, *New York Times*, *Boston Globe, Wall Street Journal, Foreign Affairs, Globe & Mail, National Post* and *Toronto Star*..

Amirmohsen Golmohammadi joined Ontario Tech University after serving as an Associate Professor at Laurentian University. He earned his Ph.D. in Management Science from the DeGroote School of Business at McMaster University in 2015. In addition to his academic background, Dr. Golmohammadi has over three years of professional experience in the Information Technology and Oil and Gas industries. His research interests focus on sustainable supply chain management. Specifically, he investigates how regulators can design effective environmental and social policies, and how businesses can adapt to these regulations. He also explores how companies can collaborate with supply chain partners, non-governmental organizations (NGOs), and even competitors to enhance their social and environmental responsibility and achieve their sustainability goals. To support his research, he employs a variety of analytical methods, including game theory, stochastic optimization, and machine learning.