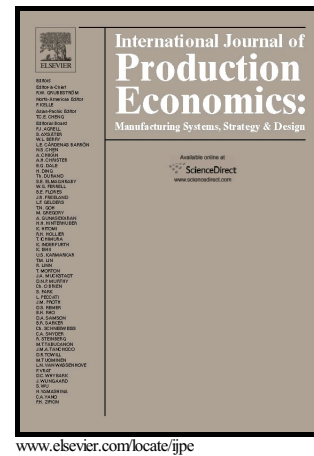


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The Impact of Development Cost  
on Product Line Design and Its Environmental Performance

Yibin Zhang<sup>1</sup>, Maryam Hafezi<sup>2</sup>, Xuan Zhao<sup>3</sup>, Victor Shi<sup>31</sup>

<sup>1</sup>School of Business Administration, Shanghai Lixin University of Commerce

Shanghai, China

<sup>2</sup>Faculty of Management, Laurentian University

Sudbury, Ontario, Canada

<sup>3</sup>Larzaridis School of Business and Economics, Wilfrid Laurier University

Waterloo, Ontario, Canada

\*Corresponding author. Tel.: 5198840710 2299; cshi@wlu.ca.

Abstract

To address environmental problems such as pollution and climate change, many firms have endeavoured to develop green products with higher environmental quality, which includes dimensions like energy efficiency and recyclability. However, environmental quality is oftentimes associated with significant development cost. In this paper, we build and analyse mathematical models to understand how development cost affects a firm's product line design when there are two consumer segments with different willingness to pay for environmental quality. The firm can employ the mass marketing strategy and develop one standard product for all consumers, or employ the market segmentation strategy and develop two differentiated products for the two consumer segments separately. We show how various parameters, especially the development cost, affect the firm's choice on the product line length, or equivalently, between the mass marketing and market segmentation strategies, and the

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\*Corresponding author. Tel.: 5198840710 2299; cshi@wlu.ca.

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