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A Comparison between Consumer and Industry Perspectives on Sustainable Practices throughout the Apparel Product Lifecycle

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The apparel and textile industry creates significant environmental impacts in product lifecycle from fiber production to end of use. As environmental awareness in the apparel and textile industry has expanded, stakeholders have developed various tools for measuring environmental impacts throughout the product lifecycle (Kozar & Connell, 2015). Developed by Sustainable Apparel Coalition (SAC), the Higg Index, including Brand, Facility and Product Modules, is one of the leading tools used by many companies across the apparel supply chain. In the past decade, consumers' perception regarding sustainable apparel products have been at the center of discussion. However, limited research has been conducted on consumers' purchase preference on apparel industries' different sustainable practices throughout the product lifecycle.

The purpose of this study was to investigate consumer preference of apparel industry's sustainable practices throughout the product lifecycle and whether consumers are willing to pay a premium for these practices. The Brand Environmental Module of Higg Index was used as the benchmark of industry's perspective on sustainable practices. There are seven sections in the Higg Brand Environmental Module with a total of 100 points and a different weight (%) for each section: general (15%), materials (25%), packaging (7.5%), manufacturing (20%), transportation (7.5%), product care and repair service (15%), end of use (10%). The weights of the last six sections from materials to end of use reflected the industry's perspective on the importance of different stages in products' lifecycle towards sustainability.

An online survey was used to collect consumers' perspectives regarding the apparel industry's different sustainable practices. The survey was conducted in the U.S. in spring 2016, and used Amazon Mechanical Turk to recruit participants. The questionnaire included 38 5-point Likert item scale questions and one open-ended question. All questions except for the questions related to willingness to pay and consumers' demographic information were obtained and rephrased from the Higg Index 2.0 Brand Environmental Module. The general section was not included in the questionnaire since the questions are related to companies' internal management and less relevant to consumers. Three to five questions were selected from each of the other six sections in the Brand Module to cover the consumers' purchase preference on sustainable practices in the corresponding lifecycle stage. Cronbach's alpha reliability coefficient was used to test whether the items in each section (variable) were internally consistent. Chi-square goodness of fit test was used to determine whether there existed a significant difference between distribution of consumers' data and the weight of Higg Index.

A total of 250 participants completed in this survey. The Cronbach's alpha coefficients for the six multi-item variables ranged from 0.74 to 0.91, indicating that all multi-item variable were internally consistent. The results of chi-square goodness of fit tests are in Table 1.

Table 1. Comparing consumers' perspective and industries' perspective on different stages of the product lifecycle

Variable	Higg weight	Estim. prob. (based on Higg weight)	Mean: consumer purchase response	Hypoth. Prob. (based on mean)	χ^2 and p-value	Mean: willing to pay (% more)	Hypoth. prob. (based on mean)	χ^2 and p-value
Material	25	0.294	3.971	0.170	34.41	8.268	0.232	12.88
Package	7.5	0.088	3.947	0.169	p<.01	4.876	0.137	p=.03
Manufac.	20	0.235	3.837	0.164		6.200	0.174	
Transport	7.5	0.088	3.750	0.160		4.868	0.137	
Care/Re-pair	15	0.176	4.266	0.182		7.192	0.202	
End of Use	10	0.118	3.638	0.156		4.202	0.118	

The apparel industry and consumers have different perspectives on the importance of sustainable practices in different stages of the apparel product lifecycle (χ^2=34.41, p<.01). The apparel industry considers materials and manufacturing to be more important, and packaging and transportation least important, as reflected by Higg Index's weight. However, consumers gave their highest purchasing preference towards the product use phase (care and repair) and gave the lowest purchasing preference on the sustainable practices regarding clothing end of use. In addition, consumers also valued more on apparel companies' sustainable practices toward packaging than manufacturing. These were contradictory to Higg Index weights.

Consumers' willingness to pay a premium on the apparel industry's different sustainable practices did not match with the industry's perspectives (χ^2=12.88, p=.03). Consumers were willing to pay the highest premium (8.3% more) on clothing that is made from sustainable materials, which was consistent with the highest materials weight in Higg index. However, consumers noted that they were willing to pay a higher premium on care and repair service than manufacturing, and they were willing to pay a higher premium on packaging and transportation than end of use. These were contradictory to Higg Index weights.

The findings indicated that SAC may reconsider the overall weight distribution of Higg Index, and companies should reallocate their resources across different stages of the product lifecycle accordingly. Specifically, it is suggested to increase the weights of packaging and produce care and repair service, and to reduce the weights of manufacturing and end of use in the overall distribution of Higg Index to narrow the gap between the perspectives of the industry and consumers, and further motivate consumers to accept environmentally friendly apparel products.

References
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