

## Title: Nudging Slow but Green Shipping Choices in Online Retail

**Abstract:** The ecommerce sector continues to experience rapid growth, with changes in consumer behavior due to Covid-19 further accelerating shifts to online purchasing. As consumers dedicate more of their pocketbooks to products delivered to their doors, the environmental implications of last-mile delivery receives increased scrutiny. Many retailers are actively seeking ways to rethink their business operations to improve environmental outcomes. Despite this, another notable trend in the ecommerce sector is fast fulfillment. Increasing fulfillment speed often requires more distribution centers located closer to customers, more vehicles operating at less than full capacity, and more use of energy intensive transportation modes such as airplanes versus trains and trucks. In short, worse environmental outcomes. While many retailers may be aware of these environmental implications, they still feel pressure to provide fast fulfillment options to stay competitive. For retailers who wish to reduce the environmental impact of their operations, this raises the question – can consumers be nudged to choose a slower but greener shipping option on their own accord? If so, how and under what conditions?

Our research examines these questions by testing the effectiveness of informational nudges that can be presented to customers when making their shipping decision. Drawing from current practice, as well as prior research on operational transparency and sustainable consumer behavior, we develop theory on the types of information that will be most effective in different logistical contexts. We focus on two of the most common logistical contexts where slow but green shipping options emerge: no-rush shipping and consolidated shipping. Through a series of experiments, we test our theory and find that the effectiveness of different types of information does vary by logistical context. In particular, green signaling is critical for no-rush shipping, but less useful for consolidated shipping. Also, process information is most effective for consolidated shipping, while outcome information is most effective for no-rush shipping. We find that information nudges work by increasing customer perception of the relative convenience and environmental benefit of the slow but green shipping option, as well as self-efficacy (i.e., belief that their shipping decision matters). We also find that adding financial incentives is only useful in isolated cases.

This is joint work with Yeonjoo Lee, who is a PhD student at the Carlson School of Management, University of Minnesota.