

Carbon labelling can potentially encourage eco-friendly E-commerce

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Having the world at our fingertips was one of the promises of the age of information. With electronic commerce (e-commerce) giving us the power to buy almost anything from anywhere with a swipe or a click, this promise has certainly been realized. Indeed, the impact of e-commerce in our lives can be seen in how online shopping platforms, from Amazon and Shopee to Taobao and Lazada, have become household names.

And yet, the convenience and swiftness of [e-commerce](#) can come at the cost of the environment, since transporting products over long distances can lead to significant amounts of carbon emissions—exacerbating the ongoing climate crisis.

However, different shipping options offered by online retailers result in different levels of carbon emissions. Given the public's increasing awareness about climate change, how can online retailers help consumers make more environment-friendly shopping decisions?

This was the question researchers from the Singapore University of Technology and Design (SUTD) sought to answer in their study published in the *Journal of the Transportation Research Board*. They showed that adding carbon emission information on different shipping options led over half of study participants to choose the option associated with lower emissions, even if it meant they had to wait longer to get their order items.

The study, which was co-authored by SUTD Associate Professor Lynette Cheah and graduate student Huang Quihong, specifically looked into cross-border e-commerce shipping options on the popular Chinese online shopping website, Taobao.

Cheah explained that the study was partly inspired by the provision of carbon emission information on airplane flight search platforms. "Similarly, by informing consumers of the emissions associated with their purchases, we believe this can help them make more informed decisions," she said.

In the study, the researchers calculated the carbon emissions associated with each mode of transport within the different shipping options offered by Taobao. These options include shipping the parcel from China via air or sea freight, as well as delivering the parcel to the receiver's address or to a parcel locker. In the case of multiple orders, buyers can choose to consolidate the orders into a single delivery or not.

To estimate the carbon [emission](#) associated with shipping the parcels, the researchers considered the mode of transportation, distance traveled and weight of purchased items to calculate the resultant carbon emissions in kilograms.

Based on the calculations, sea freight turned out to be the least carbon-intensive option. Unsurprisingly, consolidating multiple orders into one parcel also resulted in lower emissions. All in all, their findings suggested that the least carbon-

intensive option can lead to an 81 percent reduction in emissions while resulting in an additional five days of waiting time for delivery fulfillment.

"We found that the slower shipping option is cheaper and less carbon-intensive, which is not too surprising," Cheah said. "However, we were pleasantly surprised to discover that more than half of the people we surveyed were willing to accept slower deliveries, knowing that they are less polluting."

This surprising finding is from the shipping choice survey conducted by the researchers, which collected a total of 188 responses from adult Singapore residents who had previously made cross-border e-commerce purchases. In the survey, the respondents were presented shipping options with varying prices and expected delivery times. The associated carbon emissions were also revealed before giving the respondents the chance to switch choices if they wished.

The [survey results](#) revealed that of those who chose the faster shipping option for their high-value orders, 56 percent switched to the slower option after being informed of the corresponding carbon emissions.

"This was encouraging, as it suggests that carbon labels like those explored in this study, can guide more sustainable behaviors," said Cheah. "Our results show that sharing information about the emissions of different e-commerce shipping options can help promote more sustainable choices and potentially facilitate greener logistics operations."

Their promising results suggest that the adoption of carbon labels in e-commerce may help reduce the industry's impact on the climate. However, there are still challenges on this front. For instance, Cheah noted that some retailers may be concerned that carbon labels might discourage sales.

"The challenge is to consider which ways are relevant in advancing towards zero [carbon](#) goals," Cheah explained. "We hope to continue studying the sustainability impact of e-commerce and home deliveries, which will only continue to grow in popularity in years to come."

More information: Lynette Cheah et al, Comparative Carbon Footprint Assessment of Cross-Border E-Commerce Shipping Options, *Transportation Research Record: Journal of the Transportation Research Board* (2021). [DOI: 10.1177/03611981211037249](https://doi.org/10.1177/03611981211037249)

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