Energy consumption in e-commerce versus conventional trade channels
Insights into packaging, the last mile, unsold products and product returns

Henrik Pålssona*, Fredrik Petterssonb, Lena Winslott Hiseliusb

a Division of Packaging Logistics, Department of Design Sciences,
Lund University, Lund, Sweden
b Division of Transport and Roads, Department of Technology and Society,
Lund University, Lund, Sweden
* Corresponding author e-mail: henrik.palsson@plog.lth.se

ABSTRACT

The purpose is to analyse and explain factors determining whether conventional trade with stores or e-commerce with home delivery is more energy-efficient. The findings from previous studies are compared in order to identify more general patterns of energy consumption, describe which energy consumption factors (product waste and product returns, buildings, packaging, passenger transport and freight transport) are considered and what assumptions are made. In this comparison, we analyse product characteristics and product classes, discuss the energy factors with the greatest impact and the contextual impact of each factor on the energy consumption. The paper is based on a structured literature review and a content analysis, which helped us to synthesise current knowledge and explain consistent and inconsistent findings across individual studies of energy consumption in conventional sales channels versus e-commerce channels. Our literature search identified 11 studies, with 16 cases, that compared the energy efficiency. The results show the following: 1) The net effect of energy consumption was in the majority of the cases positive for the e-commerce channel, 2) The proportion of unsold products and product returns seem to have a major impact on the energy efficiency of different sales channels, 3) Buildings had only a minor effect on the energy consumption difference. It was slightly lower in the home delivery systems, 4) Packaging contributed considerably to the energy consumption difference for some products. The e-commerce channel consumed generally more energy from packaging, but indirect effects (e.g. volume efficiency) were not considered, and 5) The total energy consumption from transportation was greater in the conventional supply chains, as the additional energy in passenger transport generally outweighed the increased energy in freight transport in e-commerce. The paper points out directions for future research and discusses implications for research, policy-making and practice.

Keywords: energy, e-commerce, last mile, packaging, product waste, supply chain
دریافت فوری
متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات