

International Journal of Logistics Research and Applications >
A Leading Journal of Supply Chain Management
Volume 17, 2014 - [Issue 6](#)

6,144 Views | 153 CrossRef citations to date | 8 Altmetric

Original Articles

Carbon emissions comparison of last mile delivery versus customer pickup

Jay R. Brown  & Alfred L. Guiffrida

Pages 503-521 | Received 24 Jul 2013, Accepted 18 Mar 2014, Published online: 10 Apr 2014

 Cite this article  <https://doi.org/10.1080/13675567.2014.907397>



Sample our
Economics, Finance,
Business & Industry Journals
>> [Sign in here](#) to start your access
to the latest two volumes for 14 days

 Full Article  Figures & data  References  Citations  Metrics

 Reprints & Permissions

[Read this article](#)

[Share](#)

Abstract

The last mile problem comprises one of the most costly and highest polluting segments of the supply chain in which companies deliver goods to end customers. The recent trend towards green supply chains and social and environmental responsibility has led to many new green initiatives. One business strategy gaining popularity involves retailers offering home delivery. This paper performs a comprehensive comparison of carbon emissions resulting from conventional shopping involving customer pickup with trip chaining versus e-commerce-based online retailing involving last mile delivery to customers' homes. The break-even number of customers for carbon emissions equivalence is determined and analysed for the feasibility of last mile delivery at a desired service level based on the radius of the demand region and the delivery time available. A methodology for calculating the difference in expected carbon emissions is

formulated and demonstrated to quantify which method has the least harmful impact on the environment.

Keywords:

supply chain management last mile problem carbon emissions sustainable logistics

Acknowledgement

The authors thank the anonymous referees for their positive reviews and helpful comments.

Related research

People also read

Recommended articles

Cited by
153

[Innovative solutions in last mile delivery: concepts, practices, challenges, and future directions >](#)

Wassen AM Mohammad et al.
Supply Chain Forum: An International Journal
Published online: 7 Feb 2023



[A systematic literature review and bibliometric analysis of last-mile E-commerce delivery in urban areas >](#)

Ish Kumar et al.
Urban, Planning and Transport Research
Published online: 27 May 2024



[Replacing home deliveries by deliveries to parcel lockers: cost, traffic, emissions, and societal cost effects of locker network expansions in greater Oslo >](#)

Daniel Ruben Pinchasik et al.
International Journal of Logistics Research and Applications
Published online: 22 Nov 2023



[View more](#)

Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG



Taylor & Francis
by informa