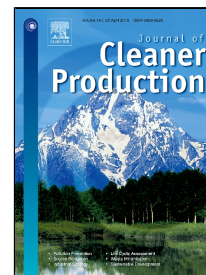


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# A novel bidirectional network data envelopment analysis model for evaluating sustainability of distributive supply chains of transport companies

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## Abstract

Applying a realistic and practical model to evaluate sustainable supply chains has been an intricate challenge for decision makers. All previous network data envelopment analysis (NDEA) models deal with unidirectional connections. In this paper, for the first time, we develop an NDEA model to deal with bidirectional connections. In addition, for the first time, bounded connections are taken into account. In bounded connections, certain bounds are set for each criterion. We assess sustainability of an Iranian transport company's branches. Our model can rank distributive supply chains and recommend improvement solutions.

*Keywords:* Sustainable transportation; Sustainable supply chain management; Data envelopment analysis (DEA); Network DEA; Bidirectional connections; Backward connections.

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