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Scale, congestion, efficiency and effectiveness in e-commerce firms

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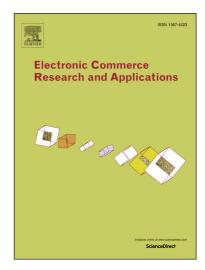
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#### SCALE, CONGESTION, EFFICIENCY AND EFFECTIVENESS IN E-COMMERCE FIRMS

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#### ABSTRACT

This research examines what affects operations efficiency and explains the paradox of high efficiency and low profits using a two-stage analytic framework. It provides a brief overview of efficiency evaluation research for e-commerce, and establishes a set of efficiency evaluation criteria, with the application of data envelopment analysis (DEA). The results suggest that e-commerce firms suffer from input congestion. Also, scale and technology issues, as well as low economic effectiveness, lead to the overall operational inefficiency. Business-to-business (B2B) e-commerce was more efficient and and effectiveness in 2014, while online-to-offline (O2O) commerce had steadier and faster growth. In general, the performance of e-commerce firms is becoming better over time. The findings of this research can help managers to improve their firms' efficiency levels by resizing their operational scale, strengthening their technology infrastructure and applications, and improving their discretionary allocation of resources.

**Keywords**: Congestion, data envelopment analysis (DEA), e-commerce, eefficiency, eeffectiveness, math programming, production economics, returns to scale

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