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Understanding the diversity of final delivery solutions for online retailing: A case of Shenzhen, China

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Abstract

Since final distribution plays a significant role in the e-commerce logistics chains, it has drawn many stakeholders' attention and different solutions have been proposed to enhance the last-mile logistics. This is particular true in China, where the final parcel distribution systems are experiencing great challenges brought by the surging e-retailing. E-commerce companies, the third-party logistics service providers (3PLs), professional community delivery firms, real estate companies, and property management companies (PMC) focus collectively on the last distribution step from community gates to consumers' doorsteps. Despite many scholars in business management have investigated the classic patterns and related operation processes, little is known about the geographical variations of final distribution solutions themselves emerging in different urban areas. Taking Shenzhen as case study, the objective of this research is to understand the spatial diversity of e-commerce final delivery in this city with largest online transactions in China today.

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Keywords: Last-mile, e-commerce, retailing, delivery

1. Introduction

Final delivery, with a metaphor of "last mile", refers to the last leg of goods movement from the last upstream distribution center, consolidation point or local warehouse to the final destination (e.g. recipients' doorsteps or specified pickup address). In the business to customer (B2C) e-commerce context, final delivery is one of the most

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complicated, expensive and inefficient segments along the whole logistics fulfillment chain (Gevaers et al., 2014). It is rooted in the particularity of ecommerce logistics (Maruntelu, 2008), for example, the frequent and larger number of small parcels or packages, the wide dispersion of recipients, constrained time window for delivery as well as high possibility of delivery failure. The inefficiency of home delivery leads to the high cost of last-mile delivery. In general, the last-mile delivery is estimated to amount to 53% of total logistics costs (Gol, 2001). The proportion sometimes can reach as high as 75% according to Onghena (2008). At the same time, last-mile plays a vital role in satisfying Internet purchasing experience. Consequently, the importance of winning final delivery of e-commerce has been recognized since the prevalence of e-commerce (Bromage, 2001; Lee and Whang, 2001). As many e-retailing giants (e.g. Amazon, and JD.com) believe that capacities of last-mile delivering are their core assets to obtain competitive advantages, the last-mile fulfillment is what the ongoing e-commerce battles are currently fighting for (Braunstein, 2015). Driven by customer demands and dominant players (e.g. e-tailing behemoths), conventional retailers and shippers forcefully strive to improve final delivery. On the other hand, professional community logistics operators and numerous startups are emerging one after another with innovative home delivery solution proposed. These schemes at least include self-pickup at convenient stores (Aoyama, 2001), collection-and-delivery points (CDP) (Browne et al., 2001; Mckinnon and Tallam, 2003), and unattended reception box (Punakivi et al, 2001; Esser and Kurte, 2006).

The striking industry changes are coupled with the rising of academic attention on final home delivery. A large body of literature available cover many issues deprived from last-mile fulfillment. Among them, typical ones include tracing innovative practices (Punakivi, 2001; Dell'Amico and Hadjidimitriou, 2012; Morganti et al., 2014), cost simulation and efficiency assessment for final deliveries (Kämäräinen, 2001; Kull et al., 2007; Gevaers et al, 2014), and modal choice (Esper et al., 2003; Boyer et al., 2009; Wang et al., 2014). The impact of last-mile schemes on logistics industry organization, urban transport and environment, freight transport planning have also been studied in depth (Taniguchi and Kakimoto, 2003; Cairns, 2005; Song et al., 2009; Edwards et al., 2010; Song et al. 2013). Despite the diversity of research topics about final delivery, few work is conducted to comprehensively understand all current schemes from the perspective of geography. Since final delivery actually is the last segment of goods movement in geographical space and time, the variation between different solutions largely lies in to what extent and by what forms that these solutions alert the spatial flow of parcels delivering along the dimension of time. It indicates a geographical perspective to examine the spectrum of final home delivery solutions. In addition, few literatures are available to examine the spatial deployment of last-mile logistics between and within different regions. The geographical disparity of last-mile delivery facilities is significant with less empirical research (Weltevreden, 2007; Morganti et al., 2014).

This study attempts to fill this research gap by unfolding the diversity of final delivery schemes within a city area and investigating geographical imprints associated with the interplays between final delivery stakeholders. Research question here is whether and how the co-existing end delivery solutions result in the spatial divergence of delivery facilities. Theoretically, conceptualizing the spatial process and consequences of different last-mile solutions enlarges the cross-discipline implications of geography on supply chain management. Practically, it shall enlighten policy makers to balance the disparity of final delivery in different areas.

The reminder of this paper is organized as follows. Section 2 presents a conceptual framework to understand the diversity of final delivery schemes as well as the geographical effect of their interaction grounding with urban physical space. Section 3 describes the case, data and methods. Empirical results about the strategies of different solution and corresponding spatial imprints in the case city are placed in Section 4 and 5, respectively, followed by the final section of conclusion.

2. Conceptualizing the diversity of final home delivery solutions

2.1. Briefing final delivery solutions: stakeholder and typical case

Although final delivery is frequently used in e-shopping today, this concept can be traced back to home delivery services provided by conventional shopping centers. Relying upon door-to-door delivery service, customers don't need to bring purchased goods home from shopping malls or stores. In the age of Internet shopping, home delivery becomes a key component to attract customers and reinforces its convenience of shopping anytime and anywhere. According to Barclay (2013), 70% of consumers prefer directly delivering to doorsteps. However, this dominant