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Last mile consumer steering in omni-channel retailing: an integrated delivery channel, mode, and partner steering study in Sweden

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ABSTRACT

Omni-channel retailing integrates physical and online shopping experiences, allowing retailers to overcome geographical limitations and serve consumers with varying preferences. The study examines and explains last mile consumer steering (LMCS) in omni-channel retailing from an omni-channel retailer perspective by identifying the most important retailer consumer steering objectives and logistics levers used to steer consumers, and LMCS influence on last mile distribution (LMDist). The sector-wide quantitative empirical study, combining Resource-Based View (RBV) and Transaction Cost Economics (TCE) lenses, covers 70 large and small and medium-sized enterprise (SME) retailers selling physical products in Sweden with various sales channel mixes. A uniqueness of this study is its integrated approach to delivery channel, mode, and partner steering. An extensive literature review identifies objectives, levers, and LMCS influences on LMDist resources. The study reveals that LMCS is widely adopted among omni-channel retailers aiming, overall, for financial performance with good logistics service. Retailers use various logistics levers to influence consumer choices, with delivery fees being the most significant factor across all types of steering. LMCS has the biggest influence on the logistics role of the store and the warehouse size. The study offers unique SME insights, a retailer group largely overlooked in existing omni-channel retail literature. Non-grocery omni-channel retailers are more advanced in LMCS practice and have more mature LMDist resources in Sweden, especially non-store dominant retailers. A novelty is that the empirical study shows that retailers who steer consumers with financial performance objectives attain significantly higher profitability in a competitive market context. Retailers should, hence, develop an integrated marketing and logistics strategy to steer consumers in the desired way, and secure appropriate LMDist resources. The study reveals the importance of delivery partner steering, a neglected research area.

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Introduction

Omni-channel retailing provides an integrated experience that combines the advantages of brick-and-mortar stores with those of online retailing (Chenavaz, Klibi, and Schlosser 2022; Huebner, Hense, and Dethlefs 2022; A. Nguyen et al. 2022). The online channel enables retailers to overcome the geographical barriers of physical stores, creating retailer advantage by serving consumers without convenient physical store access, or who have unique consumer preferences that cannot be fulfilled by the brick-and-mortar stores (Ratchford et al. 2022). Rapid online sales growth the last two decades has made the online channel the fastest growing sales channel, and omni-channel retailing has become the new standard since most offline retailers have responded to e-tailers' – retailers operating *only* with an online channel – and other actors' online advantages by adding an online channel (Verhoef, Kannan, and Inman 2015). Not only large retailers with extensive resources and strong negotiation power benefit from adopting omni-channel retailing (Mrutzek-Hartmann et al. 2022; Sallnäs and Björklund 2020); small and medium-sized enterprise (SME) omni-channel retailers outperform other SME retailers through increased market presence and revenue potential (Mrutzek-Hartmann et al. 2022).

H. K. Hübner and Wollenburg (2016) divide last mile distribution (LMDist) into last mile back-end fulfilment (LMBF) and last mile delivery (LMDe) phases as shown in Figure 1. LMBF takes place in the last retailer order fulfilment location; LMDe starts when the order is fulfilled and ends when delivery reaches the chosen customer location. LMDe is essential to creating a competitive edge in omni-channel retailing (Manss, Kurze, and Bornschein 2020; Roggeveen and Sethuraman 2020). LMDist is central to customer management in omni-channel retailing since last mile deliveries are in direct contact with the consumer (Wollenburg, Holzapfel, et al. 2018) – in many cases, the delivery is the only physical interaction with online customers. LMDist in omni-channel retailing is even more complex than in e-tailing, making it costly; it represents a large share of omni-channel retailers' revenue, with LMDe constituting 15–18% of retailers' revenue in the United States (Bijmolt et al. 2021) and LMBF constituting an even bigger share (Ishfaq and Bajwa 2019). Radomska et al. (2024) identifies two omni-channel obstacles dimensions: operational efficiency (highlighting logistics), and strategy and organizational culture. Mansurali et al. (2024) omni-channel marketing review highlights that a strategic approach is required to overcome omni-channel logistics challenges supporting Radomska et al.'s (2024) findings. Here, the researcher combines Resource-Based View
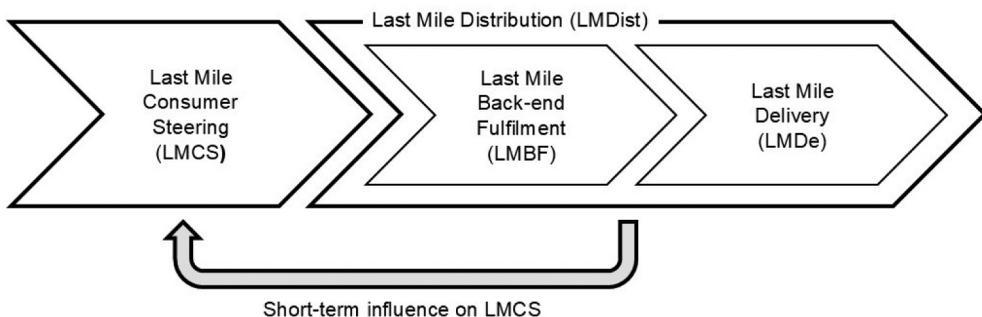

Figure 1. Last mile consumer steering and last mile distribution.

(RBV) and Transaction Cost Economics (TCE) as complementary theories to explore the novel research area of last mile consumer steering. McIvor (2009) highlights that, when used separately, these theories should be handled cautiously since they may produce contradictory conclusions when applied to operations management. A few recent studies use RBV and TCE as complementary theoretical lenses to reach stronger explanatory power when studying complex decisions (i.e.Lim and Srai 2018; Mohammed et al. 2025; Pasirayi, Fennell, and Sen 2023). LMDist resources in omni-channel retailing are brick-and-mortar stores, warehouses, and delivery resources such as delivery fleet, parcel terminals, and offices (Mrutzek-Hartmann et al. 2022; Pasirayi, Fennell, and Sen 2023). Store and warehouse formats may vary.

Omni-channel retailers may steer consumers towards a particular delivery channel (Lu and Li 2025; Xu and Jackson 2019), delivery modes (Rai, Verlinde, and Macharis 2019), or delivery partners (Risberg and Jafari 2022). Last mile consumer steering (LMCS) influences not only revenue from sales, but also transactional economics such as delivery fee income and LMDist costs, and omni-channel retailers' LMDist resources. Most studies have focused either on delivery channel steering or on delivery mode steering; delivery partner steering remains a neglected research area so it would be beneficial to perform holistic studies combining all three types of steering. Prior research consists mainly of case studies focusing on individual sectors such as grocery and fashion, consumer studies that explore how consumers react to various LMCS incentives, and modelling studies with the TCE lens aiming to find the optimal retailer delivery fee structure under certain circumstances such as limited competition. Huebner, Hense, and Dethlefs (2022) and Risberg (2023) argue that omni-channel retailers would benefit from considering online order fulfilment capacities short-term when steering consumers in order to improve logistics services and efficiency as illustrated by the reversed thinner arrow in Figure 1.

Galiullina et al. (2024) claim that omni-channel fulfilment steering is a vital research area that is largely unexplored and call for LMCS studies. It would, hence, be worth performing a large sector-wide quantitative study from a retailer perspective covering omni-channel retailers of various sizes (Wollenburg, Holzapfel, et al. 2018) with different sales channel mixes (Sharma and Dutta 2023), and broadening beyond the grocery and fashion sectors (Huebner, Hense, and Dethlefs 2022, Wollenburg, Holzapfel, et al. 2018; Ratchford et al. 2022). It is valuable to apply two complementary theoretical lenses since most prior last mile logistics studies use at best one lens, and in many cases no theoretical lens at all (Olsson, Hellström, and Pålsson 2019). The purpose of this paper is, therefore, *to examine and explain last mile consumer steering in omni-channel retailing from an omni-channel retailer perspective.*

LMCS may improve multiple aspects such as logistics service, LMDist cost to serve, revenue including sales and delivery fee income, tied-up capital, and social and environment impact (Chenavaz, Klibi, and Schlosser 2022; Galiullina et al. 2024; Lu and Li 2025; Taheri et al. 2024). It is, however, unclear whether the emerging literature has sufficiently captured what omni-channel retailers focus on while steering consumers, and which aspects omni-channel retailers of different sizes, with different sales channel mixes, in various sectors, most focus on when steering consumers through the last mile process. The author, therefore, searches for steering objectives in the literature through the RBV and TCE lens before validating them with industry experts who rank the importance of the aspects from a retailer perspective. This leads to the first research question:

RQ1: What objectives do omni-channel retailers' most focus on in last mile delivery channel, mode, and partner consumer steering?

Researchers highlight various logistics levers that may influence consumers' delivery choices and are used by omni-channel retailers to guide consumer towards delivery channel, modes, or partners (D. H. Nguyen, de Leeuw, and Dullaert 2018; Wollenburg, Holzapfel, et al. 2018). The levers are not summarised in recent literature, and it is not yet clear that the literature has captured all relevant levers. Prior studies have not described what logistics levers the omni-channel retailers commonly use to steer consumers towards delivery channels, modes, and partners. The second research questions is, therefore:

RQ2: What are the most commonly used logistics levers by omni-channel retailers to steer online consumers' choices of delivery channel, mode, and partner?

Delivery channel, mode, and partner steering influence LMDist resources (Milligan et al. 2025). An important missing piece is LMCS's influence on LMDist resources, which leads to the third research question studied through an RBV lens:

RQ3: How does last mile consumers steering influence last mile distribution resources from an omni-channel retailer perspective?

The frame of reference is established through a literature review followed by the Method section that presents how the quantitative study was performed. Following Results and Discussion, the paper concludes with remarks, implications, study limitations, and further research directions.

Frame of reference

Retailers' LMCS objectives, logistics levers used to steer consumers, and LMCS influence on LMDist resources in the developing LMCS literature are considered in three sub-sections and summarised in Table 1.

Omni-channel retailers' objectives when steering consumers

A joint integrated omni-channel *firm strategy* developed by marketing and logistics is beneficial for guiding consumers towards the most beneficial delivery channel while keeping the firm competitive and overcoming logistical challenges (Huebner, Hense, and Dethlefs 2022; Manss, Kurze, and Bornschein 2020; Mrutzek-Hartmann et al. 2022; Radomska et al. 2024).

Milligan et al. (2025) show that an increased number of online orders may create online order fulfilment capacity challenges since the current resources are not designed for the larger number of online transactions. Omni-channel retailers in the study performed by Huebner, Hense, and Dethlefs (2022) claim that online orders fulfilled in the store should not represent more than 10% of the total store sales since it would otherwise disturb offline brick-and-mortar store consumers. Omni-channel retailers may consider *online*

Table 1. An overview of last mile consumer steering.

Omni-channel retailers' objectives when steering consumers			
Objectives	Delivery channel	Delivery mode	Delivery partner
Firm strategy	x		
Online order fulfilment capacities	x		
Financial performance	x	x	x
Turnover in stores	x		
Reduce fulfilment costs	x	x	x
Environmental and social impact	x	x	x
Logistics service	x	x	x
Logistics levers used by omni-channel retailers to steer consumers			
Logistics levers	Delivery channel	Delivery mode	Delivery partner
Delivery fee differentiation	x	x	x
Delivery alternative recommendation	x	x	x
Delivery time differentiation	x	x	x
Pre-selected delivery alternatives	x	x	x
Product availability online	x		
Last mile consumer steering influence on last mile distribution resources			
Last mile distribution resources	Delivery channel	Delivery mode	Delivery partner
Warehouse sizes	x		
Number of warehouses	x		
Warehouse automation levels	x		
Number of stores	x		
Logistic role of the stores	x		
Number of delivery partners	x	x	x

order fulfilment capacities when steering consumers towards certain delivery channel (Huebner, Hense, and Dethlefs 2022; Milligan et al. 2025).

Consumer delivery channel, mode, and partner steering may influence retailer *financial performance* by increasing revenue including delivery fees (Cao and Li 2015; Mrutzek-Hartmann et al. 2022) and reducing LMDist costs (Galiullina et al. 2024; Zhou et al. 2021), which may improve profitability (Chenavaz, Klibi, and Schlosser 2022; Lu and Li 2025). Wang et al. (2022) and Gallino and Moreno (2014) argue that in-store C&C deliveries drive additional store revenue, increasing the *revenue in stores* since consumers often purchase additional product when visiting the store to collect an online order. Galiullina et al. (2024) show that LMDe costs may be decreased by 8% through incentivising consumers to select solitary C&C deliveries instead of more expensive home deliveries. One of the objectives for steering consumers towards a certain channel, delivery mode, or delivery partner is to *reduce fulfilment costs*. Huebner, Hense, and Dethlefs (2022) call for studies taking a holistic omni-channel retailer cost, capital, and revenue approach.

A firm might also steer consumers' delivery choice to reduce *environmental and social impact*. Experiments performed by Viet, de Leeuw, and van Herpen (2023), and Gruchmann, Maugeri, and Wagner (2025) show that consumers can be steered towards sustainable delivery options using both financial and non-financial incentives. Rai, Verlinde, and Macharis (2019) recommend a holistic delivery fee approach such as making in-store deliveries free while charging for home delivery to steer consumers towards sustainable delivery options.

Brick-and-mortar stores provide convenient *logistics service* to consumers in their sur-roundings, while online sales channels can serve consumers that are further away from physical stores or who have unique tastes that stores do not meet (Ratchford et al. 2022).

The retailer might offer online consumers, who prefer remote delivery, with a wide range of options for convenient logistics service (Murfield et al. 2017).

Logistical levers used by omni-channel retailer to steer consumers

Xu and Jackson (2019) show that channel pricing advantage in omni-channel retailing – meaning a total lower consumer price including fees such as delivery fees in one channel compared to another channel – exerts a desirable influence on customers' channel choice, and they argue that *last mile delivery fees* can be used by omni-channel retailers to strategically promote a specific delivery channel regardless of motivation. Prior research shows that the delivery price – *the last mile delivery fee* – is the most important steering lever from a consumer perspective (D. H. Nguyen, de Leeuw, and Dullaert 2018; Rai, Verlinde, and Macharis 2019). Manss, Kurze, and Bornschein (2020) claim, however, that channel pricing influences not only consumers' channel choice, but also the consumers' likelihood to switch between retailers. It is therefore important considering competition when exploring LMCS best practices. The retailing firm considers competition while developing their firm strategy.

Gruchmann, Maugeri, and Wagner's (2025) experimental study with Italian participants shows that *pre-selected delivery alternatives* in the online check-out influence consumers' environmental delivery selection rate. The omni-channel retailer may steer the consumer by offering *quicker delivery times* with the preferred delivery channel, mode, or partner than with the other alternatives (Wollenburg, Holzapfel, et al. 2018). An LMCS experiment performed by Rai et al. (2021), seeking to steer consumers towards slower but sustainable delivery, shows that information regarding *delivery recommendation* is three times more successful than changing the sequence of the delivery options in the check-out. Retailers can also steer consumers between different channels by displaying *product availability online* per sales channel and fulfilment location (Wollenburg, Holzapfel, et al. 2018; Mrutzek-Hartmann et al. 2022; Asmare and Zewdie 2022).

Last mile consumer steering's influence on last mile distribution resources

Omni-channel retailers may distribute store and online demand across different LMDist resources such as brick-and-mortar stores, warehouses, delivery fleet, delivery offices, and parcel terminals (Melacini et al. 2018; Pichka, Alwan, and Yue 2022). The rapid growth of e-commerce at the expense of brick-and-mortar stores influences these LMDist resources (Milligan et al. 2025).

A decrease in the total *number of stores* is unavoidable when the e-commerce share of total retail sales grows; this is particularly true in small and mid-size cities, whereas consumers in larger cities may remain well-served by physical stores (Rai 2021). A declining number of stores leads to further growth in online sales when consumers' store access declines. Stores may be used to fulfil online orders as a complement to their usual sales role, which is changing the *logistics role of the stores* from being focused on offline consumers to serving online consumers as well (Huebner, Hense, and Dethlefs 2022; Mrutzek-Hartmann et al. 2022). Omni-channel retailers with a larger store network and good national coverage hence capitalize on stores in LMDist (J. W. Hübner and Holzapfel 2016; Ishfaq et al. 2016).

An increase in online orders fulfilled in the warehouse, with fewer order lines and units than store replenishment, drives warehouse online order fulfilment capabilities (Wollenburg, Hübner, et al. 2018). The increased number of online orders may influence the *number of warehouses*, *warehouses sizes*, and *warehouse automation levels* (Boysen, de Koster, and Füssler 2021; Eriksson, Norrman, and Kembro 2019; Kembro and Norrman 2021; Melacini et al. 2018).

Most LMDe deliveries except in-store C&C require a last mile delivery fleet. Solitary C&C requires additional delivery resources such as offices or parcel terminals. Most omni-channel retailers outsource LMDe to a delivery partner; therefore, a *number of delivery partners* are included in the study.

Methods

The study sets out to examine and explain last mile consumer steering in omni-channel retailing from an omni-channel retailer perspective. Data were collected from 70 omni-channel retailers of different sizes with various sales channel mix in different retail sectors. The unit of analysis was omni-channel retailers with both physical stores and an online channel selling physical products in Sweden. The total population of retailing firms selling in Sweden was extracted from the Amadeus Bureau van Dijk database. Retailers operating with only an online channel or only physical stores were excluded from the study covering only omni-channel retailers. The retailers were contacted one by one in order of declining annual revenue by an external contact centre experienced in research data collection. The study sample of 70 omni-channel retailers comprises 9 large and 61 SME retailers, 37 store-dominant retailers, and 33 non-store-dominant retailers from a wide range of retail sectors (Appendix A). The number of large retailers was slightly overrepresented relative to the Swedish retailer population (approximately 1% large retailers, Retriever 2025), while the split between store-dominant and non-store-dominant retailers is in line with the Swedish omni-channel retailer population (54% store-dominant medium-sized omni-channel retailers, Handels 2021). The annual revenue threshold of € 50 M was applied to define whether a firm was a 'large' or 'SME' (European Commission 2025), and the sales channel mix threshold of 10% online sales of total sales was used to define whether a firm was a store-dominant omni-channel retailer or not (Risberg and Jafari 2022). The number of retailers from the top four non-grocery retail sectors in study represented 51% of the non-grocery retailers, was in line with the Swedish retailer population distribution in which apparel, sport and leisure, home and office electronics, and furniture and home décor represent 53% of the Swedish retailer population (Appendix A).

The researcher performed an extensive literature review identifying retailer's consumer steering objectives, levers used to steer consumers, and steering influence on LMDist in the literature, this is summarised in Table 1 in the Frame of Reference section. Table 1 serves as a basis for the questionnaire presented in Appendix B that was used by the contact centre during the data collection. The questionnaire contained three open-ended questions (question E, G, and I in Appendix B) giving the retail practitioners the possibility to comment if they thought that any objectives, 'levers' or influences response options were missing. The researcher discussed the questionnaire with a senior retail researcher before sending the questionnaire to the

contact centre. The first question was a multiple-choice classifier used to record sales channel mix, while the remaining questions except the three open-ended questions were 7-point Likert scales to describe why and how retailers steer consumers, and LMCS influence on LMDist resources. The Likert scales ran from 'strongly agree' (coded as '7') and to 'strongly disagree' (1), and each question had a 'don't know' option.

The researcher added examples like 'Do you steer consumers towards a delivery partner like DHL?' in the Swedish questionnaire before sending the questionnaire to the contact centre so that contact centre agents and respondents could not misunderstand the questions. These examples are not included in the English translation of the questionnaire in Appendix B due to space limitations. The contact centre manager translated the questionnaire into a script for use by the contact centre agents and trained the agents before data collection was initiated. The contact centre contacted each retailer to schedule an appointment with a suitable respondent. Participants were informed that their answers were confidential before the interview started. The questionnaire was piloted on 10 omni-channel retailers and the result from the pilot study was shared with the researcher before data collection continued. The responses to the three open-ended questions gave the researcher the possibility to check if any response option was missing. The researcher could not identify any missing response options based on the pilot answers. The data collection process took in total 8 weeks.

The researcher validated that the participating firms were all omni-channel retailers by reviewing retailers' webpages before analysing the data. The data were divided into two groups – *grocery and non-grocery retailers* – before analysis. The reason is that LMDist differs greatly between grocery and non-grocery retailing (Wollenburg, Hübner, et al. 2018). The retailers that had answered 6 or 7 on the questions regarding steering online consumers towards a delivery channel, delivery mode, or delivery partner were classified as retailers steering consumers as well as retailers scoring 6 or 7 on questions regarding levers used for steering.

The researcher analysed the rich data in multiple ways (Table 2), considering the means, medians, percentage agreeing – denoted '*agreers*' – answering 6 or 7 on the Likert scale, percentage disagreeing – '*negators*' – answering 1 or 2 on the Likert scale, and overall answers distribution on stacked bar charts (Abell, Churcher, and Lee 2009). This range of approaches allows both simple differences to be identified, and also questions eliciting polarised responses. For the polarised cases, the researcher analyses whether they can be attributed to the influence of retail sector, retailer size, or retailer sales channel mix. These analyses are presented in Appendices C, D, E, F, and G.

The researcher analysed all responses on the three open-ended questions to explore if industry experts wanted to add additional objectives, levers, or influences not mentioned in the literature. No additions were identified; however, a few interesting clarifications were given by the retailers in the 60 responses after the pilot responses. These clarifications are presented and discussed in the Result and discussion section.

Secondary profitability data was used to examine if omni-channel retailers steering consumers to achieve better financial performance were more profitable than the retailers that did not do that. Mean and median profitability were analysed for the different retailer groups.

Table 2. Percentage of omni-channel retailers steering towards a delivery channel, mode, or partner.

Retail sector	Steering retailers	Delivery Channel	Delivery Mode	Delivery Partner
Books and media	100%	50%	75%	25%
Apparel	89%	67%	56%	0%
Construction and hardware	100%	67%	33%	33%
Furniture and home décor	100%	83%	50%	33%
Home electronics	100%	100%	100%	67%
Miscellaneous	67%	33%	67%	67%
Pharmacy and cosmetics	100%	100%	33%	67%
Sport and leisure	100%	70%	10%	50%
Non-grocery sectors	96%	70%	45%	36%
Grocery	87%	65%	74%	13%
All retail sectors	93%	69%	54%	29%
Retailer size	**Steering retailers**	**Delivery Channel**	**Delivery Mode**	**Delivery Partner**
Large retailers	100%	100%	67%	33%
SME retailers	92%	64%	52%	28%
All omni-channel retailers	93%	69%	54%	29%
Retail sales channel mix	**Steering retailers**	**Delivery Channel**	**Delivery Mode**	**Delivery Partner**
Store-dominant retailers	89%	73%	49%	22%
Non-store-dominant retailers	97%	64%	61%	36%
All omni-channel retailers	93%	69%	54%	29%

Note: The steering retailers column shows the percent of omni-channel retailers that steers towards delivery, mode, or partner.

Results and discussion

The study findings are discussed under five subsections: omni-channel retailers' adaptation of LMCS practices and delivery preferences, omni-channel retailers' most common objectives to steer consumers, LMCS and financial performance association, most-used logistical steering levers, and LMCS influence on LMDist resources.

Omni-channel retailers' delivery channel, mode, and partner steering practices

A novel observation is that LMCS practices are commonly adopted by omni-channel retailers regardless of size, sales channel mix and retail sector, as shown in Table 3.

More than two-thirds (70%) of the omni-channel retailers participating in this study steer consumers towards a certain channel regardless of whether they are grocery or non-grocery retailers. Omni-channel retailers prefer, in general, that consumers pick up their online orders in a store (Appendix G). Larger and store-dominant non-grocery omni-channel retailers steer consumers towards the store delivery channel to a greater extent than their SME and non-store dominant counterparts. Both retailer groups have, in most cases, a larger store network as an important LMDist resource, in line with prior research (J. W. Hübner and Holzapfel 2016; Ishfaq et al. 2016). The research thus complements past findings by showing that two-thirds of the SME and non-store-dominant retailers also steer towards the store delivery channel, which answers the call by Wollenburg, Holzapfel, et al. (2018) and Sharma and Dutta (2023).

Half of the omni-channel retailers (54%) steer consumers towards a certain delivery mode such as home delivery or solitary C&C. Non-store-dominant retailers with a more online sales (as a share of total sales) and SME retailers with weaker negotiation power (Sallnäs and Björklund 2020) steer consumers towards a particular delivery mode to a greater extent than large retailer and store-dominant retailers. Both groups prefer

Table 3. Omni-channel retailers steering objectives, levers, and influence on LMDist resources.

solitary C&C mode over home deliveries: solitary C&C deliveries cost retailers less than home deliveries. This shows the importance of steering towards the lowest retailer delivery costs, a finding that had previously been known only for large retailers (Galiullina et al. 2024; Lu and Li 2025).

Interestingly, 74% of the omni-channel grocery retailers steer consumers towards a certain delivery mode while only 45% of the non-grocery retailers do that. Non-grocery retailers' delivery mode preference is solitary C&C with the lowest transaction cost if the consumer prefers remote delivery over store delivery, while the grocery retailer's preference is home deliveries, which may be explained by perishable and frozen grocery products having certain delivery requirements such as refrigeration. Few delivery partners in Sweden have LMDist resources to offer a nationwide temperature-controlled solitary C&C delivery network. The lack of solitary C&C delivery resources with temperature control might explain why three-fourths of the grocery retailers steer towards a delivery mode, and why they prefer home delivery over solitary C&C.

Roughly one-third (30%) of the omni-channel retailers steer consumers towards a delivery partner. Non-grocery retailers and non-store-dominant retailers, with a wider range of delivery options (Risberg and Jafari 2022), steer to a greater extent than grocery and store-dominant retailers towards a delivery partner. Both retailer groups are more focused on reducing the online order fulfilment costs than their counterparts, this novel finding highlights the importance of delivery partner steering to improve financial performance, an important dimension neglected in the literature.

Most important omni-channel retailer last mile consumer steering objectives

The retail experts confirmed that the list of objectives identified in the emerging literature is complete. One clarification regarding the firm strategy was that one large and originally store-based pharmacy retailer without an online channel mentioned competitive pressure as their objective for steering consumers towards a certain delivery channel, in line with Manss, Kurze, and Bornschein's (2020) findings.

The most important delivery channel objectives among omni-channel retailers are firm strategy, logistics service and financial performance as presented in Table 2. A large share of the retailers (42%) consider online order fulfilment capacities during channel steering which complements prior research focusing on online order fulfilment in brick-and-mortar stores (Huebner, Hense, and Dethlefs 2022). This highlights the need to develop an integrated marketing and logistics strategy to secure appropriate LMDist resources to be able to steer the consumers in the desired way, without the capacity challenges identified in this study and by Milligan et al. (2025). Half of the omni-channel retailers aim at improving revenue in their stores, whereas the retailers are more polarised regarding the importance of reducing the online order fulfilment costs when channel steering. The most important retailer objectives to steer towards certain delivery modes and delivery partners are logistics service and financial performance. The most important overall LMCS steering objectives are better financial performance with good logistics service. Both store-dominant and non-store-dominant retailers' main steering objectives are financial performance with good service. Store-dominant retailers are even more focused on increasing store revenue than non-store-dominant retailers when promoting a certain channel, in line with prior studies (Gallino and Moreno 2014; Wang et al. 2022).

Non-store-dominant retailers focus, in the same way, on increasing store revenue when steering towards a channel, but are additionally focused on reducing fulfilment costs, in line with Zhou et al. (2021). The non-store-dominant omni-channel retailers aim at reducing fulfilment costs by steering customers towards certain delivery modes and delivery partners. Non-store dominant retailers' delivery preference is solitary C&C over the more expensive home deliveries. These novel findings explain the polarisation regarding the importance of reducing fulfilment costs by showing that omni-channel retailers with different sales channel mixes have different objectives when steering. The original conclusions – that store-dominant retailers focus mainly on steering the consumer towards a certain channel while non-store-dominant retailers focuses also on reducing fulfilment costs – become even more evident when combining the findings in this paragraph with the findings summarised in Table 3; these show that store-dominant retailers steers towards a delivery channel to a greater extent than their non-store-dominant counterparts, which steer towards both delivery modes and a partner to a greater extent than store-dominant retailers.

SME omni-channel retailers focus to a greater extent on online order fulfilment capacities during channel steering and reducing fulfilment costs when promoting delivery modes than large retailers (Appendix D). It seems that SME retailers may be constrained by their lesser resources and bargaining power relative to larger retailers (Mrutzek-Hartmann et al. 2022; Sallnäs and Björklund 2020).

Grocery retailers consider existing online order fulfilment capacities to an even greater extent than non-grocery retailers during channel steering (Appendix C). SME and grocery retailers focus on resource capacities explains the polarised capacity answers. Grocery retailers in Sweden fulfil most online orders in stores, this supports (Huebner, Hense, and Dethlefs 2022) findings that online order fulfilment in stores may disturb brick-and-mortar store shoppers. Non-grocery omni-channel retailers put more emphasis on reducing fulfilment costs and increasing store revenue than grocery retailers when steering consumers towards a certain delivery channel and mode as presented in Appendix C, even though both groups are equally focused on achieving good financial performance. Non-grocery omni-channel retailers prefer solitary C&C deliveries over home deliveries (Appendix G).

Last mile consumer steering and financial performance

Considering that the most important overall retailer steering objective is to improve financial performance, the researcher examines if retailers that steer and aim at improving financial performance (answering 6 or 7 on the Likert scale on both questions) are more profitable than retailers that do not steer to improve financial performance. Interestingly, the study shows that omni-channel retailers that steer either towards delivery channel, mode, or partner and steer to improve financial performance, have a mean and median profitability of 8.7% and 7.3%, respectively. These should be compared with the mean and median of 4.0% and 3.5% among retailers who do not aim at improving financial performance through steering; the profitability means differ by almost 5 percentage points (p.p.), and the medians by almost 4 p.p. The gap is 6.0 p.p. when comparing non-grocery retailers aiming at improving financial performance with their counterparts not trying to improve financial performance (10.5% versus 4.5%). In grocery retailing, the

difference is almost 1.0% (4.0% versus 3.1%). It should be noted that the online share of total sales in non-grocery retailing was almost three times as high as in the grocery retailing at the time of the study. The gap in average profitability increases when analysing non-store-dominant retailers in all retail sectors to over 7 p.p. (10.6% versus 3.2%), which should be compared to 3 p.p. (7.7% versus 4.7%) in the case of store-dominant retailers. This shows that LMCS influences financial performance, and that LMCS becomes even more important when the online share of total sales increases. A strength with the quantitative empirical study is that the study consider competition which is missing in prior studies examining LMCS, in most cases modelling studies (Chenavaz, Klibi, and Schlosser 2022; Lu and Li 2025). Manss, Kurze, and Bornschein (2020) highlight that LMCSs do not only influence consumers delivery choices, but also influences consumers' likelihood to switching retailer. It is, therefore, vital to consider competition, thus Wang et al. (2023) call for studies considering competition in highly competitive environments.

Most-used logistics levers by omni-channel retailers to steer consumers

The industry experts thought that the list of logistics steering levers detected in the developing literature were completed. Their main comment was that retailers use free freight to steer consumers; this is, however, captured by the delivery fee differentiation lever.

The most used logistics lever for consumer steering towards delivery channels, modes, and partners is delivery fees (Table 2). This finding complements prior research showing that the most powerful steering lever, from a consumer perspective, is delivery price (D. H. Nguyen, de Leeuw, and Dullaert 2018; Rai, Verlinde, and Macharis 2019). Pre-selected delivery alternatives are popular when steering towards delivery modes and partners complementing prior e-tailer findings (Risberg and Jafari 2022).

Large omni-channel retailers and retailers whose total sales include a higher share of online sales use delivery fees to a greater extent than SME and store-dominant retailers to guide consumers towards delivery channel, modes, and partners (Appendix D, E and F). Large retailers use delivery time to steer consumers towards a certain delivery channel, mode, and partner which is not the case for SME retailers. This explains the polarised responses regarding delivery time as a lever.

Non-grocery omni-channel retailers complement financial incentives with non-financial methods such as pre-selected delivery alternatives, delivery information, and product availability online to steer consumers towards a certain channel, mode, or partner while grocery retailers rely mainly on financial levers (Appendix C).

Last mile consumer steering influence on last mile distribution resources

The retail executives agreed with the list of resources. One clarification from a SME furniture retailer is that LMCS might influence the store format, they can foresee that stores are converted to show rooms after centralising pick and pack. This is covered by the logistic role of the store, even though existing literature mainly focus on that the store will take on a bigger logistics role.

The study finds that delivery channel steering influences omni-channel LMDist resources. Delivery channel steering has, in general, the biggest influence on the size of

the warehouse and the logistics role of the store from an omni-channel retailer perspective, and less influence on the number of warehouses and stores. The responses regarding delivery channel steering influence on the warehouse automation level is extremely polarised, 41% agree while 37% disagree. Deliver mode and partner steering interplay with a number of delivery partners, and the researcher calls for studies examining the interplay.

Large retailers' steer more towards a delivery channel than SME retailers as presented in Table 3, the store delivery channel. Larger omni-channel retailers experience that delivery channel steering has an influence LMDist resources in the form of warehouse size, number of warehouses, warehouse automation, and the logistics role of the store, to a greater extent than SME retailers (Appendix D). Delivery channel steering has an influence on the logistics role of the store for both store-dominant and non-store-dominant retailers, while the influence on warehouse sizes and automation level is relevant only for non-store-dominant retailers (Appendix D). Larger omni-channel retailers and non-store-dominant retailers process, in most cases, a bigger number of total online orders than SME and store-dominant retailers. Larger retailers have more stores than SME retailers in general, implying that more of their total orders may be moved from multiple store locations to a smaller number of warehouse locations by steering consumers towards warehouse-fulfilled online orders. This explains the polarised responses regarding delivery channel steering influence on warehouse automation levels, and supports former studies showing that a growing number of online orders fulfilled in the warehouse drives warehouse online order fulfilment capabilities and automation (Eriksson, Norrman, and Kembro 2019; Kembro and Norrman 2021; Wollenburg, Hübner, et al. 2018).

Delivery channel steering has an influence on the number of warehouses and warehouse automation level in grocery retailing (Appendix C). This goes hand in hand with the finding that grocery retailers consider store online fulfilment capacities while steering towards delivery channel. It seems, therefore, that there is a need for more warehouse fulfilment locations in grocery retailing, preferably automated solution when the share of online order may increase in grocery retailing.

Concluding remarks

It is shown that LMCS is embraced by omni-channel retailers. The study reveals that omni-channel retailers' most important motivations for steering consumers towards delivery channels, modes, and partners are financial performance with good logistics service. The importance of delivery partner steering, a neglected area in literature, is shown. Delivery fee is the most used lever for such consumer steering. The study shows that retailers that steers with the aim of improving financial performance are more profitable in a competitive environment than their counterparts not aiming at improving financial performance, the steering importance is increasing when the online sales share of total sales are increasing. The study demonstrates that LMCS influences LMDist resources and that LMDist resources limit omni-channel retailers from steering consumers in the desired way. It is, therefore, essential to develop an integrated marketing and logistics omni-channel strategy. This study is one of the first to explore these phenomena among SMEs.

LMDist resources are less developed in omni-channel grocery retailing compared to non-grocery retailing. Grocery retailers consider LMDist resources and resource capacities

to a greater extent when steering. Non-grocery omni-channel retailers are more advanced in their LMCS practices and LMDist resources, especially non-store dominant retailers. Non-grocery omni-channel retailers that steer with financial performance as an objective are significantly more profitable (6 p.p.) than retailers not steering. These findings hold true also for grocery retailers.

Finally, the study shows the strength of combining the RBV and TCE lens when examining consumer steering objectives and levers, and LMCS influence on LMDist resources.

Research implications

The study summarises retailer LMCS objectives, levers, and influence on LMDist in the LMCS literature. The study makes clear that researchers cannot neglect the importance of LMCS when studying LMDist resources since omni-channel retailers that steer consumers are more profitable which is the most important retailer objective, and that LMCS influences LMDist resources. The importance of delivery partner steering and its impact on financial performance is demonstrated, the author emphasizes the need of continued research.

A novelty is that the quantitative empirical study considers competition, as called for by Wang et al. (2023). This study extends current omni-channel retail research, which has largely focused on large retailers, by introducing evidence from SMEs. The SME findings contribute to theory development and open new avenues for research. The study shows that the importance of LMCS will continue to increase in the future if the online share of total sales continues to increase as projected, and the researcher hence calls for studies explaining how the sales channel mixes influence LMCS practices and LMDist resources.

The research shows that the most used logistics lever for consumer steering is the delivery fee, complementing prior studies showing that delivery price is the most powerful steering lever from a consumer perspective (D. H. Nguyen, de Leeuw, and Dullaert 2018; Rai, Verlinde, and Macharis 2019). It is hence important to conduct studies exploring delivery fee structures leading to better financial performance in competitive environments, a complex topic.

Managerial implications

Applying the TCE lens shows that omni-channel retailers steering consumers with the objective of improving financial performance have roughly 5 p.p. higher profitability than retailers that do not steer to improve profitability. The gap increases to 7 p.p. when studying non-store dominant omni-channel retailers. These significant differences in financial performance highlights the benefits from developing an integrated marketing and logistics strategy combining RBV and TCE lenses. The RBV lens sheds light on what LMDist resources omni-channel retailers may need depending on retailer size, sales channel mix, and retail sector. This study offers unique LMCS and LMDist resources insights for SME retailers, a group largely overlooked in existing omni-channel retail literature.

Limitations and further research directions

A limitation, while exploring whether retailers prefer that the consumer picks up the order in the store, receives online orders at home, or collects at a solitary C&C location is that the study does not consider that retailers may steer consumers differently depending on factors such as average order value. The researcher urges that future studies consider this aspect.

The Swedish context – low population density, a large area (for Europe), a challenging logistical shape, and high blue collar-labour costs – may influence the result. It would be worth testing the findings in another context such as countries of different size and shape, with higher population densities, or with lower blue-collar labour costs. Such contextual factors might influence aspects such as last mile delivery cost, consumers' purchasing power, convenient store accessibility, and consumer expectations.

Disclosure statement

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Notes on contributor

Andreas Risberg is a PhD student at Jönköping University, Department Supply Chain and Operations Management, with experience from several senior international retail positions. His research focuses on how successful omni-channel retailers design the last mile.

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