Topics in Regulatory Economics and Policy

Pier Luigi Parcu
Timothy J. Brennan
Victor Glass *Editors*

Postal Strategies

Logistics, Access, and the Environment

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Preface and Acknowledgements

This book collects contributions presented during the 30th Conference on Postal and Delivery Economics, jointly organized by the Florence School of Regulation—Communications and Media (FSR C&M) at the European University Institute and the Center for Research in Regulated Industries (CRRI) at the Rutgers Business School. This Conference celebrated its 30th anniversary at the iconic Grand Hotel Rimini, in Italy, on 25–27 May 2022. It was a triumphal return to an in-person gathering after two difficult years of the pandemic. Over three days, the Conference showcased presentations of more than thirty original papers and a roundtable discussion among some of the regulators present at the event. The Conference was also enriched by three keynote presentations given by Giacomo Lasorella, President of the Italian regulatory Authority AGCOM, Pedro Galides, President of the Cyprus Regulatory Authority OCECPR and Prof. William Kovacic of George Washington University. Prof. Kovacic masterfully recalled the history of the conference and celebrated its development over the last thirty years.

Among this year's topics, the role of digital platforms in the postal sector, and particularly the impact of vertically integrated firms in delivery markets, was discussed by several contributors, because that development presents many business, regulatory and competition-related issues. Other topics of great interest included national and international dimensions of both the regulation of parcel delivery and its environmental footprint, in light of innovations affecting the so-called last mile and the effects of the covid-19 pandemic on the postal sector. Among the traditional topics for postal and delivery sectors, the Conference hosted discussions about postal costs and pricing, the funding of Universal Service Obligation and the related role of Universal Service Providers, which remain of great importance.

The Conference was made possible by the contribution of generous supporters. We would like to thank them not only for their financial support but also for joining the organizing committee providing, along with others, intellectual contributions, advice and encouragement: Bruno Basalisco, Matteo Bassi, Claire Borsenberger, Stephen Brogan, Alberta Corona, Peter Dunn, Stefano Gori, Felix Gottschalk, Annegret Groebel, James King, John Hearn, Adam Houck, George Houpis, Keith Kellison, Soterios Soteri.

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As usual, we thank all the authors and conference participants who responded with great enthusiasm to the resumption of the gathering in person after two years of online conferences. This edition of the Conference brought together the "pioneers" and founders of this event and a new generation of professionals and researchers in the sector. The fruitful exchange that took place during the event is certainly a reason for optimism for the future of the Postal and Delivery Economics Conference.

The usual disclaimers are applicable. In particular, the views expressed reflect the views of the authors and are not necessarily those of the editors or supporters.

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Competitive Strategies of Marketplaces Vis-À-Vis Logistic Choices: Issues of Efficiency and Competition

Pier Luigi Parcu, Anna Renata Pisarkiewicz, and Chiara Carrozza

Abstract With continuously growing e-commerce with its increased demand for fast delivery, various e-commerce players have decided to enter this market to improve both efficiency and effectiveness of the service. Vertically integrated digital marketplaces' business models, however, raise the concerns of competition and regulatory authorities across the world because of the anti-competitive behaviours they might facilitate. The paper discusses motivations behind and potential implications for competition of the logistic choices in last-mile delivery of important e-commerce platforms, providing a comparison between Amazon, Alibaba and Allegro.

Keyword E-commerce · Last mile · Digital platforms · Logistic · Competition

1 Introduction

One new trend that raises particularly interesting industrial but also regulatory and competition issues is vertical integration by e-commerce platforms into B2C last-mile delivery. Delivery allows digital platforms to better control the quality of delivery, one of the most crucial factors in the online shopping experience (Blut, 2016). However, vertical integration can also enable firms, which are dominant in their core market, to leverage their dominant position to a neighbouring, ancillary market. Moreover, dominant e-commerce platforms are not just vertically integrated; they also tend to operate as ecosystems (Gawer, 2011, 2014). The notion of *platform ecosystems,* as developed by Gawer and colleagues, provides an alternative framework to the traditional notion of "vertical integration" to explain the logistic choices and business strategies related to value creation and value capture of these actors. It reflects what many have identified as the most significant paradigm shifts of modern business management: the fact that firms no longer compete as solely autonomous entities, but rather as supply chains (Lambert and Copper, 2000) in a business environment

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where the ability to control and orchestrate resources and capabilities is often more important than owning them.

Competition and regulatory authorities across the world are concerned about how digital marketplaces' business models might facilitate anti-competitive behaviours. The EU is investigating Amazon, concerned about preferential treatment of Amazon's retail business or of third-party sellers who use Amazon's logistics and delivery services, and its potential to distort competition in online retail markets. The Polish competition authority UOKiK has launched proceedings against its major national marketplace, Allegro, to examine whether changes made to its commission rules had granted Allegro unjustified advantages. In April 2021, China's State Administration for Market Regulation (SAMR) imposed on Alibaba the highest ever fine since the enactment of its Anti-Monopoly Law (AML). SAMR found that Alibaba had abused its dominance by effectively forcing sellers to rely exclusively on its platform, thereby contravening Article 17(4) of the AML, which prohibits dominant companies from "allowing their trading counterparts to make transactions exclusively with themselves or with the undertakings designated by them" without objective justification. In November 2021, the Italian competition authority, AGCM, fined Amazon 1.13 billion EUR for having leveraged its dominant position in the Italian market for intermediation services on marketplaces to favour its own logistics service—Fulfilment by Amazon (FBA) to the detriment of independent postal and express delivery courier operators. Finally, postal regulators, who actively monitor the delivery sector, note that vertical integration coupled with platformization and the resulting intensity of control that dominant platforms exert over parcel delivery create problems that call for regulatory or legislative intervention (AGCOM, 2021; CNMC, 2020; ERPG, 2021)

Analysis of dominant e-commerce platforms' business models can inform our understanding of the ability and incentives such platforms may have to engage in leveraging and our interpretation of the resulting competitive effects. A common concern with leveraging, be it in the context of traditional vertical integration or within an ecosystem, is that where a company is dominant in one market and is itself active in another vertically related one it can have incentives for self-preferencing or for other forms of discrimination against competitors. Indeed, various behaviours of e-commerce platforms that are currently being investigated resemble Google's self-preferencing conduct, which has been condemned as anti-competitive both by the European Commission[1] and the General Court.[2] Last but not least, while today the B2C e-commerce delivery market may still be largely considered as competitive (Parcu et al., 2022), concerns arise that despite its rapid growth driven by e-commerce, it may become excessively concentrated due to the role played by large e-commerce platforms in the delivery sector (ERGP, 2021; AGCOM, 2021). Hence, the question is whether e-commerce entry into last-mile delivery, bundling delivery with other services offered by online marketplaces raises serious competition issues, and if so, whether their assessment requires any adjustment.

[1] Commission Decision of 27 June 2017, Case AT.39740, *Google Search (Shopping)*.

[2] Case T-612/17, *Google LLC and Alphabet, Inc. v. Commission*, EU:T:2021:763.

The paper starts with a discussion of motivations behind the entry of e-commerce platforms into last-mile delivery in Sect. 2. Next, Sect. 3 compares logistic choices of platforms such as Amazon, Alibaba and Allegro, to show the extremely dynamic and evolving nature of their business models. Section 4 examines the entry into the B2C delivery market in terms of: (1) competitive effects of leveraging that is implemented through bundling or tying, and (2) how a transaction cost approach could inform competition enforcement. Section 5 briefly concludes.

2 Vertical Integration and Ecosystems

Firms can vertically integrate either downstream or upstream. While some delivery couriers have integrated upstream in the value chain, launching their own e-commerce management platforms or other e-commerce projects (Parcu et al., forthcoming), in this paper we focus on the e-commerce downstream integration towards the delivery phase.

When deciding whether to vertically integrate a complementary activity, firms engage in two types of evaluation: strategic assessment and financial calculation. The latter involves balancing of estimated cost savings with the investment that would need to be incurred whereas the first compares the impact of integration versus reliance on market transactions (Porter, 2004:31).

According to Hagel and Armstrong (1997), there are four reinforcing loops that determine the growth of online markets: content attractiveness, member loyalty, member profiles and transaction offering. Firms that are able to deliver on all of them are expected to grow faster than their rivals (Oliva et al., 2003). Members' loyalty depends on a firm's attractiveness, which in turn depends on several key attributes: price, product selection, site content, site performance, fulfilment accuracy and reliability, customer service and brand equity (Oliva et al., 2003). This paper focuses on fulfilment as timely, reliable and cheap delivery is one of the main factors that determine the user's choice of one e-commerce platform over another.[3]

In the current context of growing e-commerce, low consumer loyalty but increasing and more sophisticated demand, that last-mile delivery has become a key opportunity for platforms to differentiate one's own offerings.

Last-mile delivery in B2C exhibits a much higher degree of complexity than that of traditional B2B logistics, posing an enormous challenge for B2C retailers and delivery companies. A higher degree of complexity implies higher transaction costs if the activity is carried out externally by other couriers than if it is done internally. Transaction costs derive primarily from the costs of searching, negotiating, enforcing contracts, and coordinating logistics and delivery. In dynamic and rapidly changing markets, writing complete contracts that would consider all important future developments is practically impossible. This increases contracting costs,

[3] The importance of delivery in certain instances may actually exceed that of the price of the products offered on the platform.

which are further inflated for recurring transactions and long-term relationships, both of which necessarily characterize online marketplace relationships with delivery couriers.

Integration of last-mile delivery may be very important not only because it can help reduce transaction costs, but also because it allows e-commerce platforms to gain end-to-end visibility and control over the entire supply chain. Entrusting the last mile to third parties cedes control over the most visible customer-facing part of the chain and may be at odds with those business models that are particularly customer-driven (Berg and Knights, 2019). Control allows firms to improve customers' trust, which in the online environment is essential. Insufficient service infrastructure, which includes last-mile delivery of inferior quality or that does not satisfy existing consumer demand, might result in a poor fulfilment experience, reduced overall attractiveness of the platform, and as a result limited growth opportunity. As expansion or improvement of existing infrastructure requires time, periods of decreased quality and capacity shortages can further reduce quality and constrain growth (Oliva et al., 2003).

Considering that investment in deploying last-mile delivery can be both time-consuming and quite substantial, alternative options may be equally, if not more attractive. As Gottfriedson et al. (2005:132) note: "*It's no longer a company's ownership of capabilities that matters but rather its ability to control and make the most of critical capabilities, whether or not they reside on the company's balance sheet*". What are the most critical capabilities that e-commerce platforms need to thrive? In its *Amazon* decision, AGCM (2021, para 49) explains that marketplaces base their success on a set of factors that increase consumer confidence in the security of the transaction, a key element in online purchases. These include: (i) greater guarantees of reliability of the seller, thanks to the verification and control carried out by the platform; (ii) greater security of payments; (iii) the possibility of concluding the transaction directly; (iv) more accurate and faster deliveries; and (v) better customer care services, including efficient handling of complaints and returns. It is the reinforcing nature of these capabilities that drive online marketplaces towards vertical integration and the expansion of the ecosystem towards the delivery activity.

According to ecosystem scholars, platform ecosystems take a *hub and spoke* form, with an array of peripheral firms connected to the central platforms via shared open-source technologies or technical standards. By connecting to the platform, complementors can generate interesting innovations, gaining access to both platform's resources and, in some cases (as in the app market) to its customers. In general terms, complementarities are of two main kinds: *unique* or *supermodular* (Jacobides et al., 2018). The first kind, in its strict form, can be explained by the expression "A cannot function without B", while the second by the expression "more of A makes B more valuable", where A and B are different products, assets or activities. Both kinds of complementarities might play a crucial role in e-commerce, where the actors in the marketplace, the logistics and the delivery segments of the business, are linked by complex relationships of collaboration and competition. The management of these relationships is challenging, as the vast literature on vertical integration and firm'

boundaries acknowledge, because of the potential problems related to both value capture and quality improvements.

3 Platform Strategy and Logistic Choices

This section focuses on B2C logistics in which a successful delivery requires an elevated level of automation, IT integration between warehouse logistics and online sales, a capillary distribution network, with warehouses distributed in various places on the territory to ensure fast delivery and, of course, an effective reverse logistics.

The major global platforms, Amazon and Alibaba, started as e-commerce companies and later expanded beyond internet-based activities. Amazon, for example, besides being a network orchestrator, is also an asset builder (i.e., logistic infrastructure), a service provider (AWS) and a technology creator. Alibaba integrates a logistic platform for delivery (Cainiao), a cloud computing services provider (Ali Cloud), designed to optimize Alibaba's own e-commerce ecosystem and, since 2004, Alipay launched as a third-party online payment platform. A similarity between the two global platforms is that today also their physical assets are noteworthy: first, the distribution network infrastructure (Rodrigue, 2020), and, second, the offline stores (including Amazon's acquisition of Whole Foods Market in the US and Alibaba's Hema Fresh Stores in China). However, while Amazon also owns over 100 private label brands that operate in dozens of markets on its site, including food and beverage, automotive, clothing and electronics, where it competes with third-party sellers, Alibaba has chosen not to engage in this business area so far.

Notwithstanding the similarities between the two giants of e-commerce, their business models differ substantially. The growth of Amazon reflects both horizontal and vertical integration to respond to increasing customer expectations for faster deliveries while offering an unprecedented diversity of items that physical retail stores cannot offer. Starting as a niche online retailer of books, music, movies and computer games in 1995 (Rodrigue, 2020), in the 2010s Amazon undertook a massive strategy of horizontal integration by opening a large number of e-fulfilment centres in the US and launching the "Fulfilment by Amazon" programme, allowing retailers to use its logistic facilities for a fee. Finally, by mid-2010s, with the explosion of e-commerce demand, the company undertook a process of vertical integration: ground transportation services were established to handle the additional demand and the operational requirements of its distribution system.

As for the last mile, since 2018 when it launched the Delivery Service Partner (DSP) programme, Amazon has been contracting with local delivery companies, which allowed it to enter into direct competition with UPS and FedEx on a massive scale. The DSP programme is active only in some countries since the business model adopted by the company differs according to the national conditions (ERGP, 2021). In Europe, Amazon has invested significantly in downstream logistics infrastructures (including sorting and distribution centres) to ensure reliable and fast delivery, and in some countries, it has been also active in the last-mile delivery. In Italy, for example

Amazon delivers parcels through its subsidiary Amazon Italia Transport (AIT) or uses third-party postal operators and express couriers. More specifically, in urban high-density areas, Amazon relies on Delivery Service Providers (DSPs). In rural zones, with low density and longer distance from sortation centres, the group contracts the services of national couriers (in Italy, GLS, Poste Italiane, BRT).

In contrast, Alibaba opted for an asset-light delivery model, integrating and streamlining the vast delivery resources that already exist across China, rather than investing in its own infrastructure. Cainiao, the logistics arm of the Alibaba Group set up in 2013, operates as a data-sharing platform allowing collaboration between warehousing, trucking and last-mile delivery. Cainiao, and hence Alibaba, employs all major delivery carriers, such as SF, ZTO and YTO. To ensure that packages get to the destination, fulfilling the targets of 24-h delivery domestically and 72-h delivery internationally, Cainiao relies on Alibaba Cloud's IaaS platform that tracks packages at every stage of the supply chain. Cainiao is actually far from being a typical logistic firm: it is rather an open platform that brings together around 3,000 logistics companies, which altogether employ around 3 million couriers, enabling merchants to choose the most cost and time efficient delivery solutions.[4]

China seems therefore to be a frontrunner in offering highly innovative solutions for last-mile delivery: around 70% of parcels are delivered on the same day and consumers in China expect delivery to be free without an upfront premium payment, as is the case with Amazon Prime now in the US or in Europe. While until very recently Alibaba did not have a membership programme with exclusive benefits, it has recently launched 88VIP to reward its most loyal customers with premium services. The benefits also include access to video-streaming platform Youku Tudou, a subscription to Alibaba's music platform Xiami as well as discounts on its food delivery platform Ele.me.

Compared with these two tech giants, the Polish platform Allegro, established in 1999, is much smaller. The platform has approximately 40% of the market share in the country, and with its 194 million monthly visitors, it is currently the tenth most visited marketplace in the world. Allegro is mostly focused on the e-commerce business, but its ad business has also been growing fast in recent years. It also expects to boost revenue with new offerings, including a network and logistics service for sellers, Allegro Fulfillment, and a payments service, Allegro Pay. In Poland, Allegro competes with the major marketplaces, such as AliExpress (part of the Alibaba family), Zalando and Amazon, which launched its fully Polish version on March 2, 2021.

The late arrival of global e-commerce platforms in Poland might explain their absence in the parcel delivery activity that has so far been provided solely by the traditional couriers (Parcu et al., forthcoming). The strategy of the Polish marketplace with respect to delivery seems, however, to be evolving. Historically, Allegro's hosted merchants organized delivery services directly with the carriers, with a limited

[4] The model is explained in "China's Cainiao is Revolutionizing How Goods Get Delivered. Will the Rest of the World Follow Its Rules" available at: https://time.com/5914173/cainiao-logisitics-alibaba-china-trade/ .

involvement of the platform in the process. Since 2017 Allegro's delivery model, however, has evolved significantly. While in 2017 approximately only 10–15% of delivery volumes were processed through Allegro's managed 3P delivery network, in 2020 they reached 70% (Allegro, 2020). This change was possible because Allegro introduced its own smart logistics 'HUB' platform, which allows Allegro to connect its merchants with leading delivery carriers (such as InPost, DPD, UPS and the Polish postal operator, Poczta Polska). To further improve its delivery service, in 2018, Allegro has launched Allegro Smart!, a free delivery subscription service (with a minimum order of 40 PLN or about 8 euros) and next, in 2021, it acquired X-press Couriers, a local same-day delivery company. Last but not least, in November 2021, Allegro launched a new logistics brand, One Box, under which it officially started deliveries to its proprietary network of parcel lockers.

This brief overview of the delivery models of three important e-commerce platforms shows how they all continuously adapt their delivery strategies. While they differ in organizational choices, improving the delivery experience appears a key area of competition for all of them. In the near future, Alibaba's Cainiao aims to digitize the logistic process from top to bottom and for the Alibaba group instant delivery seems to be the next technological challenge.[5] Allegro has recently launched "Delivery Promise", a programme which allows clients to obtain information about delivery times with 95% accuracy. Finally, Amazon has been working for some years now on Prime Air, designed to safely deliver packages to customers in 30 min or less using drones, and it might be ready to launch it soon.

4 Competition and Efficiency Trade Offs

Vertical integration of retail commerce and delivery services is neither a new phenomenon nor a problem in itself. Still, the entry of dominant e-commerce platforms into delivery markets has implications both for the consumers' satisfaction and for the competitive conditions. The latter because such platforms are both customers of postal and delivery service providers and provide delivery services themselves, for their products as well as those of third-party sellers. As such platforms account for a substantial portion of the total parcel volume, they benefit from strong bargaining power on the demand side vis-a-vis postal service providers for whom they become indispensable customers. On the supply side, vertical integration allows them to directly leverage their market power from the market for intermediation services to the B2C parcel delivery market. Such leveraging will typically occur through tying or bundling.

Facing cross-sectoral competitive threats, ecosystems are more prone to engage in leveraging through the joint provision of complementary services as part of their defensive and expansion strategies (Eisenman et al., 2011). Competition authorities

[5] How Alibaba tracks China's delivery drivers, available at: https://www.technologyreview.com/2021/10/27/1037279/china-alibaba-group-delivery-drivers/.

shall need to distinguish anti-competitive leveraging from pro-competitive expansion. As competition problems arise due to the very structure of the multi-product ecosystem and the platform's central role within it, rather than dominance in any particular market (Jacobides and Lianos, 2021), the following section examines: (i) competitive effects of leveraging implemented through bundling or tying within the ecosystem; and (ii) the potential contribution of the transaction costs approach to competition enforcement.

5 Leveraging Through Tying and Bundling

Tying and bundling are pervasive business practices. From an antitrust perspective they are difficult to assess, as in many cases they have a valid efficiency justification. In the case of online marketplaces, vertical integration, the multi-sided and multi-product nature of the activity are all relevant for the analysis of potential efficiencies as well as of anti-competitive effects that joint provision of services may cause. Thus, a marketplace's conduct should be evaluated by taking into account the commercial link between functionalities of services that are subject to tying or bundling. Considerations presented in Sect. 2 explain that joint provision of intermediation and delivery services by an online marketplace can have perfectly rational justifications, and as such can fall within the scope of legitimate commercial practices. The problem arises when the joint provision entails an element of coercion that limits competition and customer choice.

Leveraging through tying or bundling by a platform can be directed at either consumers or third-party sellers and, in each case, it will have different implications. Consider that the relationship between two tied or bundled products can be characterized as either independent or complementary. Two given products are independent when a consumer obtains value from the product irrespectively of whether or not they consume the other product.. However, for consumers delivery is such an integral part of the online shopping experience that it often constitutes an essential element of the bundle. Driven by convenience, consumers expect one-stop shopping rather than having to arrange for the delivery themselves. Consequently, online marketplaces have been offering delivery options (be it free or for additional payment) as an integral part of the shopping experience long before platforms started integrating into B2C delivery.

In contrast, for third-party vendors that sell on e-commerce platforms, often delivery is considered just a complementary service, not an essential one. Whether this complementary delivery service is bundled or tied with a set of ancillary benefits or functionalities, will depend on the nature of those benefits and the competitive strength of the platform. If those benefits are essential for ensuring a level playing field between third-party seller's products and those of the platform, their joint provision practically forces third-party sellers to rely on the delivery managed by the platform. This restricts third-party sellers' free choice of delivery couriers, which in itself could turn out to be anti-competitive.

In the context of limited choice, AGCOM (2021, para. 49) in its analysis of the B2C parcel delivery market noted that Amazon's bundling of services, that also include a delivery service, allows third-party sellers not only to increase sales but to also obtain delivery conditions that are more beneficial than they could obtain independently from delivery couriers. This is because of the volume of parcels a platform handles, Amazon enjoys countervailing buyer power, which allows it to negotiate significantly lower delivery prices with large and small couriers alike.[6] Furthermore, to make up for such big discounts, in a sort of "waterbed effect", delivery couriers may even seek to raise prices they charge to independent sellers widening the gap for them. Charging potentially excessively high prices is only possible if the lack of transparency in the parcel delivery market on the supply side, where delivery contracts tend to be individually negotiated, allows it. Nevertheless, in the absence of publicly available pricing lists, small and medium-sized firms in particular, which account for an important part of third-party sellers active on digital marketplaces, may often lack the information necessary to assess whether prices offered to them by delivery couriers are excessively high.

If a platform's gatekeeper position can restrict third-party's choices in the delivery market, but at the same time can offer them delivery at conditions that are more beneficial than those sellers would have been able to negotiate independently, then it is necessary to assess which of the two effects prevails. Also, considering that vertical integration of online marketplaces into the delivery sector as well as bundling or tying of delivery services with other services offered by the platform can produce other efficiencies, the question is whether such efficiencies may offset any potentially anti-competitive effect of the conduct. The CJEU confirmed that efficiency defence in Article 102 TFEU can be brought under objective justification. The legal test, which in practice corresponds to conditions laid down in Art. 101(3) TFEU, requires demonstrating that the conduct in question is proportionate to the objectives pursued and may generate economic benefits that outweigh the potential negative effects on competition. For example, the tying of FBA with Amazon's benefits or the tying of PayPal payments to Ebay may, respectively, foreclose competition on the market for B2C delivery or online payment services with respect to third-party sellers, while simultaneously reduce transaction costs for consumers in the online e-commerce. The tension is evident.

The examples above show the importance of accounting for the multi-sided nature of platforms when assessing potential efficiencies and weighing them against potentially anti-competitive effects that may arise in different markets. While the assessment of efficiencies across various markets is not a new issue and has already been carried out to some extent in previous cases, there is a concern that it may not sufficiently consider how different markets and different sides within the ecosystem are connected (Mandrescu, 2021).

[6] For example, Khan (2017) reported that Amazon was able to obtain 70% (!) discounts over regular delivery prices. However, discounting practices due to buyer bargaining power exist also in bulk letter mail delivery, where supply is even more concentrated than in parcel delivery, and where such discounting is accepted by policymakers (Copenhagen Economics, 2021:9).

6 Transactions Costs

The rise of platforms and ecosystems and their pervasive presence have raised concerns that due to their unique position such platforms might exploit dependencies of their complementors and consumers by inducing co-specialization that restricts competition and entry (Jacobides and Lianos, 2021). Useful for understanding the degree of dependency is the concept of sunk investments. The strategic management literature differentiates between nonspecialized (generic) and specialized (non-generic) sunk investments (Teece, 1986; Jacobides et al., 2018). The former can be easily redeployed because they are not related to a specific trading partner. The latter, in contrast, are linked to a specific trading partner, and as such cannot be redeployed without incurring loss.

Transaction cost economics explains that sunk, non-generic, relationship-specific investments drive firms towards vertical integration and long-term contracts (Klein, B. et al., 1978; Fink et al., 2006). Such investments are particularly problematic in markets with a limited number of trading partners, and even more so in markets where a dominant company is practically an unavoidable trading partner. This is because non-generic sunk investments are exposed to the risk of holdup, i.e., ex post contractual opportunism in which one of the parties can alter terms and conditions of trade causing harm to its trading partner.

When applying this approach to e-commerce marketplaces, we need to distinguish economic relationships between the platform and third-party sellers on the one hand, and the platform and delivery companies, on the other, even if both categories may need to undertake non-generic investment to extract the most from the relationship with the platform. The risk of holdup seems to be particularly acute for delivery couriers and postal service providers in the e-commerce delivery market considering that demand is highly concentrated as significant part of online shopping takes place on just a few marketplaces (AGCOM, 2021). This grants dominant platforms significant countervailing buyer power. AGCOM, for example, has found that "some operators [had] made specific investments and significantly changed the organization of delivery to ensure a privileged supply relationship with the platform". This could happen even in the case of a legacy operator. For example, in June 2018, Poste Italiane entered into an agreement with Amazon, which was renewed in early July 2021 for the next three years. The agreement foresees the preparation of Delivery 2022, which involves *"the reorganization of the delivery process by providing for the supply of innovative services and fast delivery solutions throughout the national territory"*. AGCOM acknowledges that such an agreement may produce different effects: it can render Poste Italiane economically dependent on Amazon, but it can also alter the degree of concentration in the B2C parcel delivery.

Should a competition authority assess such an agreement under the transaction cost approach, it would have to examine whether delivery couriers are locked in, whether they could easily redeploy or otherwise protect their investment, and whether the platform would have to compete to maintain commercial relationships with them.

If following a platform decision to adversely change the contractual terms and conditions, delivery couriers could easily switch to another platform, such conduct would not fall foul of competition law, but if the independence, on the delivery end, is jeopardized by relevant sunk costs the opposite conclusion could be warranted.

Where it is easy to adopt long-term contractual arrangements in the presence of sunk relationship-specific investment, market power poses little threat to investment (Biggar and Heimler, 2021). Chilling of investment is in fact the primary concern that exercises of marker power raises under the transaction cost approach. It is also a particularly relevant concern because digital platforms both bring value to the market by aggregating demand and act as catalysts for complementary innovations that expand the ecosystem (Vezzoso, 2020). Online marketplaces have driven innovation both in last-mile delivery and e-commerce, making it more accessible for SMEs.

However, when adopting a medium- to long-term perspective, the following elements should also be taken into consideration. First, e-commerce has driven innovation in logistics, enabling new forms of distribution and retailing (Hortaçsu and Syverson, 2015). Second, delivery costs vary across customers: they are higher for rural and lower for urban areas (Borsenberger et al., 2018). This would explain e-commerce platform's preference for limiting integration of last-mile delivery activities only to urban areas, and relying instead on independent delivery operators in high cost rural areas. Such geographic differentiation of expansion into last-mile delivery may be quite problematic if scale of operations is important as it may restrict the scale of contestable markets to less profitable areas.

7 Conclusions

Firms compete on price, innovation, quality and output, and in doing so they also compete by innovating their business models. A key driver of their evolution (not to mention of the competition among them) is improving the customers' experience. Because success in online markets is driven by the control of various capabilities, the reinforcing nature of these capabilities drives, almost naturally, marketplaces towards vertical integration and the creation of ecosystems. Within multi-product ecosystem, platforms have clear incentives to bundle their different products as it allows them to achieve various types of efficiencies. Despite the variety of the business models, this paper presents examples in which major e-commerce platforms are moving towards increasing functional integration of retail and delivery.

Besides the differences, what emerges is the special role of e-commerce platforms as system orchestrators. They not only aggregate demand and offer scale that individually third-party sellers would not be able to achieve, but they assume full responsibility vis-à-vis consumers, which explains the relevance of brand visibility and the quality of the delivery for their success. As system orchestrators, platforms seek to control the quality of the shopping experience along the entire chain. In this process efficient delivery becomes not only a parameter that allows them to differentiate from competition but an essential component of their offer. The consequence

for consumers and third-party sellers can be reduced transaction costs and improved quality, which are both positive results. However, competition along the supply chain may be seriously reduced, as smaller sellers and delivery companies see their choices increasingly limited or altogether dictated. This seems to be the major concern of antitrust authorities and postal and delivery sector regulators.

The question of whether the positive results of orchestration of the e-commerce value chain may be achieved through less stringent means, or at lesser costs for competition, certainly deserve further research. A more detailed comparison of different business solutions, which the analysis of Amazon, Alibaba and Allegro models in this paper has clearly shown to exist, can constitute a good starting point for this effort.

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Lessons from the Experience of Telecommunications Regulation for Regulation in the EU Package Delivery Industry, with Focus on Access Regulation

Debra Aron and Geoff Edwards

Abstract We examine lessons from the telecommunications access regulation experience in the EU and US and apply those lessons to the package delivery industry. In hindsight, telecommunications assets thought to be bottlenecks necessary for competition were circumvented in unexpected ways. While access obligations facilitated entry based on incumbent networks, the evidence is that they have tended to impede investment in the purported bottleneck facilities as well as alternative technologies. These effects are likely to be particularly costly for social welfare in industries like telecommunications where there was the potential for substantial future investment and innovation. Recent calls to impose access obligations on e-commerce companies in relation to package delivery activities, where similar investment and innovation potential exists, are therefore particularly fraught.

Keyword Package delivery · E-commerce · Access regulation · Bottleneck · Telecommunications

1 Introduction

The package delivery industry in the European Union is typically regarded as highly competitive. For example, the European Commission (EC) has recently referred to "fierce competitive pressure" and "intense and dynamic competition" in parcel delivery (European Commission, 2021a). In recent years parcel senders and recipients have benefited from substantially enhanced delivery options and service quality.

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Moreover, in the modern package delivery marketplace, the number of competitive providers has grown tremendously. In many cases the providers have developed interconnected and interdependent operations through commercial agreements.

These industry characteristics and developments typically satisfy policy makers that there is no need to introduce regulation to promote entry and competition. Indeed, that has recently been the conclusion reached by the European Commission (European Commission, 2021b). Nonetheless, the package delivery industry's growth and increasing societal significance, together with the entry and growth of players that are vertically integrated into e-commerce, have fueled calls from some EU regulators for "greenfields" regulation of package delivery services. In particular, the European Regulators Group for Postal services (ERGP) expressed concern that online marketplace platforms were reshaping the postal sector by "integrating activities along the value chain (e.g., matchmaking, ordering, (traditional) fulfillment, payment)…" and urged the European Commission to expand the reach of postal regulation outside of the traditional bounds of postal services, calling for a reconsideration of "the scope of the postal sector in a forward-looking perspective to deal with these new players and business models" and a shift in focus of postal sector regulation from universal service obligations for letter delivery to parcel delivery (ERGP, 2020).

The ERGP concluded that sector-specific regulation remains necessary and that "a new framework should focus on a proper functioning of markets and competition as the primary means to meet user demand" with national regulatory authorities having "sufficient power to intervene ex-ante in case of actual or potential competition problems," including "the competence to impose regulatory obligations such as: access to the network and its components at cost orientated prices, the publication of a reference offer, non-discrimination and development of margin squeeze tests following an analysis of the relevant market." Hence, the commentary of the ERGP appears to contemplate the possibility of access regulation, imposed ex ante, to address competitive concerns that have not yet materialized. The ERGP was not specific about the nature of the access regulations it might advocate nor on whom it would advocate the access be imposed.

The Italian regulator, AGCOM, has adopted specific new regulatory measures in relation to package delivery services in Italy (AGCOM, 2022). This new regulation is notable in that it is targeted not at the incumbent operator, as has been traditional in regulatory policy in the postal, telecommunications, and other sectors, but instead on a relatively recent entrant, Amazon, that does not even operate its own last-mile delivery services in Italy.[1] Following a lengthy investigation of package delivery services in Italy, AGCOM concluded that Amazon is able to (among other things) leverage market power from its position as an e-commerce platform for third-party sellers into package delivery services; and may in the future make use of its vertical integration to generate barriers to entry into package delivery services.

[1] In Italy, Amazon is active in the form of an e-commerce marketplace and a logistics operation, which is downstream of last-mile delivery, but is not active in last-mile delivery services.

The forms of regulation adopted by AGCOM are focused on transparency and include a set of information requirements applying to all large operators,[2] and additional information requirements applying only to Amazon, particularly pertaining to Amazon's "Fulfilment by Amazon" ("FBA") program for delivery services, as well as to average prices paid to package delivery service providers.

Regulation can be imposed not only by sector regulators, but also by competition authorities. In late 2021, the Italian competition authority (AGCM) issued a decision related to its investigation of Amazon regarding alleged self-preferencing of Amazon's delivery logistics services (AGCM, 2021). AGCM concluded that Amazon leveraged a bottleneck in intermediation services on e-commerce "marketplaces" to impede competition in e-commerce logistics services, in which AGCM includes package delivery. In addition to a fine, the AGCM decision imposes access obligations on Amazon by which third-party sellers can obtain certain visibility benefits on the Amazon marketplace without having to fulfill orders using FBA. The efforts of the competition authority to impose access obligations at the e-commerce platform level of activity to purportedly protect competition in package delivery (broadly defined to include fulfillment) is noteworthy.

We cannot predict the outcomes of future regulatory efforts in package delivery, but given the commentary of the ERGP, AGCOM, and AGCM, it is clear that regulatory authorities are increasingly interested in access obligations and have begun, at least in Italy, to impose them.

The EU has extensive experience with access regulation in the context of telecommunications. Indeed, the telecommunications industry bears a number of high-level similarities to the package delivery industry. Like package delivery, the telecommunications industry is characterized by interconnected networks exhibiting economies of scale, scope, and density. It has experienced industry-altering technological developments and it exhibits vertical as well as horizontal relationships among competitors.

The purpose of this paper is to identify lessons learned from successes and failings of telecommunications regulation in the EU and examine how they inform concerns being raised in the package delivery arena. We draw on the experiences of telecommunications regulation in the EU and the US, which adopted somewhat different philosophical approaches and experienced substantially different evolutions of telecommunications regulation and deregulation.[3] We focus our attention on access regulation, both because it has been a primary tool of market-opening regulation in telecommunications since the 1990s, and because, as noted above, recent calls for regulation in package delivery have embraced the concept of access obligations. As a matter of economics, requiring a company to allow its competitors to access

[2] The requirement applies to operators with at least 50 employees and annual turnover relating to postal services for each of the past three years of at least €10 million.

[3] We refer the reader to Aron and Edwards (2022) for an extensive description of the regulatory and deregulatory history and outcomes in the US and EU telecommunications industries, as well as details of the history of regulation of package delivery in the EU and the evolution of the package delivery industry.

its facilities or assets is among the most intrusive of regulatory interventions, with potential to affect innovation and investment, and merits special scrutiny.[4]

The paper is organized as follows. In Sect. 2.1 we summarize the ways in which telecommunications regulation and deregulation over the last 25 years have succeeded or fallen short. Section 2.2 articulates key lessons from that experience, and Sect. 2.3 applies those lessons to the package delivery industry. We offer brief concluding comments in Sect. 3.

2 Lessons from the Experience of Telecommunications Regulation and their Application to Package Delivery

2.1 Where did Telecom Regulation Succeed and Where Might It Have Fallen Short?

To derive lessons from the regulatory experience in the telecommunications sector it is useful to first consider which aspects of telecommunications regulation were successful and which were unsuccessful. In Europe, liberalization of telecommunications occurred gradually beginning in earnest in the late 1980s and continues to evolve. The regulatory scheme included the requirement that incumbents provide broad access to the incumbents' networks, with the breadth of access obligations decreasing over time according to a framework known as the "ladder of investment" (LOI). According to the LOI theory, access obligations would be successively removed as access-only entrants made investments in facilities that provided alternatives to the incumbents' network elements. Liberalization and access regulation in telecommunications are regarded as having been largely successful in facilitating competition in the sector, albeit with substantial variation in outcomes across Member States (Parcu and Silvestri, 2014; Liikanen, 2001; Cave et al., 2019).

There certainly was significant entry following liberalization of European telecommunications markets that was facilitated by access regulation. EC data show that in 2014 incumbent shares of retail broadband services were below 50% in most Member States and competitive provision of broadband using access to incumbent DSL networks was significant in many (European Commission, 2014). Indeed, by 2015 entrants in Europe served nearly half of all broadband subscribers that were served using incumbent DSL networks (European Commission, 2016). For the vast majority of these subscriptions, entrants were taking advantage of access obligations imposed on incumbent operators by using unbundled incumbent local loops and combining these with their own core and aggregation networks, with only small

[4] The principle that a company is not obligated by law under general competition principles to share its assets with a competitor was articulated by the US Supreme Court in Veri*zon Communications, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. (2003) (commonly known as the Trinko decision).

proportions served via wholesale broadband access or pure resale. Cable, fiber, and other technologies (mainly fixed wireless access) were also significant in many Member States; however, in many Member States and in the EU overall, competitors accessing DSL networks from incumbent operators served more broadband subscribers than competitors using alternative technologies.

Hence, access regulation undoubtedly resulted in declines in incumbent retail market shares. Some evidence also indicates that local loop unbundling was associated with broadband speed improvements[5] and price reductions.[6] Entrant investments in alternative core and aggregation networks have also, consistent with the LOI theory, allowed the access requirement to be narrowed substantially.

In these respects, it might be said that the European telecommunications regulatory framework was a success. However, while access-based entry and competition in itself might deliver some quality improvements and price reductions, these are relatively static gains. Access regulation does not come without a cost, and a full assessment of its success or otherwise necessitates accounting for the effects of a regulatory framework on investment incentives and longer-term dynamic efficiency. An incumbent that is required to allow its competitors to compete with it using its own facilities has depressed incentives and ability to engage in future investments in those facilities or new facilities (e.g., Grajek and Röller, 2012; Laffont and Tirole, 2001; Newbery, 2002; Yoo, 2012). Moreover, there are countervailing investment incentive effects of LOI regulation (or any regulation that provides access to the last-mile bottleneck) on entrants, potentially encouraging some investment by entrants in core and aggregation networks, but depressing investment by entrants in alternative last-mile infrastructures.[7]

It is well-accepted that facilities-based competition (inter-platform competition, in which competitors provide their own last-mile connections) tends to deliver greater benefits to consumers than access-based (intra-platform) competition and should be preferred where it is feasible. Empirical studies have found that broadband adoption is higher, quality is higher, and prices are lower where competition is inter-platform relative to intra-platform (see, e.g., Smith et al., 2013; Nardotto et al., 2014; Aron and Burnstein, 2003). Inter-platform competition also provides consumers greater choice of product attributes. Cave et al. (2019) summarized the literature by referring to full (facilities-based) competition between infrastructures as "the gold standard"

[5] Consistent increases in broadband speeds have been a global phenomenon over the past two decades, and Europe is no exception. Attributing causality to these increases is difficult; however, Smith et al. (2013) find a positive relationship between the share of unbundled local loops out of all broadband lines and broadband speeds. Similarly, Nardotto et al. (2014) used a detailed data set from the UK to find that access to local loops had a positive effect on broadband speeds.

[6] See, e.g., the charts showing the evolution from 1998 to 2014 of average revenue per line (ARPL) for fixed access and voice and for fixed broadband in Lear et al. (2017), pp. 49 and 50.

[7] As Hellwig (2008) observed, for entrants, access regulation incentivizes investment in infrastructure needed to make use of the regulated inputs, but at the same time disincentivizes investment in alternative infrastructure that would bypass the regulated inputs.

and concluding that it "yields better results than access-based competition" (see also Cave 2014).[8]

There has been considerable empirical research on the effects of unbundling obligations on incumbent and entrant investment. While the literature does not provide unambiguous conclusions, there is evidence that access regulation in Europe negatively impacted last-mile investment by both incumbents and entrants. A much-cited empirical study by Grajek and Röller (2012) found that access regulation increased investment by entrants but reduced investment by incumbents and reduced investment overall by €16.4 billion (representing 23% of the infrastructure stock). The same study also found evidence of a regulatory commitment problem further discouraging investment: the more investment incumbents undertake, the more likely they will find their networks subject to access regulation. See also, Crandall (2005). Briglauer et al. (2017) found that more stringent access regulations harm incumbent investment in fiber networks.

In relation to entrant investment, using US data Crandall et al. (2004) found that growth of facilities-based entrants tended to be slower when prices for access to unbundled network elements were lower (i.e., when access regulation was more generous to entrants). Similarly, Cave et al. (2019) observed, anecdotally, that European countries that declined to regulate access to incumbent fiber networks experienced investments in alternative fiber networks by entrants, whereas countries that regulated access to incumbent fiber tended to find that only the incumbents made fiber network investments.

The premise that where access to particular facilities is required it will be used, at the expense of investment in alternative infrastructure and innovation, was vividly exhibited in the US, where competition has developed quite differently and in stark contrast to Europe. In the US, the access rules established by the FCC after the passage of the Telecommunications Act of 1996 provided for essentially complete access to incumbents' end-to-end voice networks at low, "cost-based" rates, without sunset provisions and without a showing that competitors would be impaired without such access (at least, not without a showing that satisfied the US courts). Initially after the establishment of these rules there was an influx of new entrants into local voice telephony using the incumbents' end-to-end services, including a reported $30 billion in investment and hundreds of new companies (Huber, 2003; see also Woroch, 2002, reporting that between Q1 1996 and Q4 1999, the number of competitive local exchange carriers (CLECs) in the US holding telephone numbering codes had increased from 16 to 275). To a large extent, the investment was not in network facilities but rather in software, systems for interfacing with the incumbent, and other costs associated with standing up a business based on, effectively, resale of the incumbent's service. At the same time, very low regulated prices made it difficult for companies to compete by investing in network facilities.

[8] Cave et al. (2019) qualify that, in their view, at the time that the European Union embarked on access regulation there was no facilities-based alternative, as deploying an alternative copper-based infrastructure was unrealistic in the first decade of the twenty-first century, so that a regulated telecoms monopoly was the only real alternative. This somewhat glosses over the developments of cable and mobile networks around that time.

The chaos of the near-decade between the passage of the Telecommunications Act and the ultimate rescission of mandatory access to end-to-end service at low, "cost-based" rates in the US included the dot-com bust (Kellogg, 2015–2016), three court rulings remanding the FCC's access regulations (*AT&T Corp. v. Iowa Utilities Bd.*, (525 U.S. 366 [1999]; *United States Telecom Ass'n v. FCC*, 290 F.3d 415 [D.C. Cir. 2002], and *United States Telecom Ass'n v. FCC*, 359 F.3d 554 [D.C. Cir. 2004]), multiple rounds of revised rules (FCC, 1999, 2003, and 2005), and the ultimate withdrawal by the FCC of mandatory access to certain components of the network that, in turn, ended the availability of end-to-end access at very low regulated rates (FCC, 2005). Most of the entrants operating at that time no longer exist today (or no longer exist as stand-alone companies).

Today in the US, although unbundled last-mile facilities ("local loops") remain available at "cost-based" regulated prices based on forward-looking incremental cost, the number of lines served by competitors using incumbents' local loops is miniscule (FCC, 2021). Competition for both voice and broadband service in the US today, particularly for residential customers, is largely provided by cable companies and wireless carriers. Moreover, the incumbent telecom providers, who provide broadband service over aDSL and fiber-to-the-home (FTTH), provide a minority of fixed broadband lines, and cable companies provide the vast majority (FCC, 2022).

Hence, in the US, unlike in Europe, competition initially followed a tumultuous path driven by overly-broad access obligations, the lack of a clear path toward narrowing those obligations, abrupt changes in policy once companies had begun to make investments in access-based business models, and, in no small measure, the failure to appreciate the effect that access to incumbent networks would have on the incentives for and viability of facilities investment. Until the access rules were limited, competition was largely access-based and once access rules were narrowed, and after a turbulent adjustment, competition has become largely facilities-based (inter-platform).

Cave et al. (2019) concede that the EU access regime was more successful at squeezing static efficiencies from the existing system than stimulating the dynamic transition to next generation infrastructures and services. According to Cave (2014), the ladder of investment did have the effect of an increasing prevalence of competitive lines offered over the incumbents' last-mile infrastructure, but it was not necessarily intended to and did not lead to duplication of last-mile infrastructure by entrants.[9]

2.2 *What Lessons Can We Draw from the Experience of Telecommunications Regulation?*

The experience of telecommunications regulation teaches us that it is risky to innovate and potentially self-reinforcing to pronounce an asset to be a bottleneck and to

[9] For some evidence that investment in cable networks suffered due to mandated access to incumbent telco networks see Waverman (2006).