Topics in Regulatory Economics and Policy

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

The Changing Postal Environment

Market and Policy Innovation

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Preface and Acknowledgments

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The Conference continues to provide a valuable opportunity for the researchers and stakeholders to share knowledge and best practices, as well as testify to the evolution in the postal and delivery sector. Reflecting this evolution, the Universal Postal Union, e-commerce, competition, pricing, the challenges and opportunities of digitalization and new technologies, the changing role of postal operators, and the Universal Service Obligation in a blended (physical-digital) environment were all subjects for study and debate.

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 their helpful advice in their role on the organizing committee as well as, along with others, intellectual contributions, advice, and encouragement: Virginie Alloo, Mattias Almqvist, Antonin Arlandis, Kamak Arzhangi, Bruno Basalisco, Olga Rocio, Bohorquez Suarez, Stephen Brogan, David Brown, Mindaugas Cerpickis, Julien Crutzen, Sophie De Schrevel, Barbara Delaney, Peter Denley, Peter Dunn, Blandine Eggrickz, Colm Farrelly, Nathan Francis, Jimmy Gårdebrink, Marina Gibbs, Stefano Gori, Philip Groves, Adam Houck, John Hearn, Marine Lefort, Gerdis Marquardt, Leonardo Mautino, Sandro Mendonça, Jade Neveu, Henrik Ballebye Okholm, Alain Roset, Luigi Stammati, Sophie Van Besien, Tim Walsh, Paul Walsh, and Özhan Zurel.

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In addition, we thank all the authors and participants of the Conference. Without their contributions, the Conference and this book would not have been possible. 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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Postal and Electronic Communications Services: Together Again?

Paula Gori and Pier Luigi Parcu

1 Introduction

The future of the postal sector remains a major topic. The Internet continues to alter the mix of mail and parcels in postal and delivery markets. Digital disruptions continue to reshape the habits of users and consequently all the underlying markets.

From a policy perspective, postal and telecommunications regulation have remained separate even though their services are substitutes (e.g., e-mail replacing mail) or complements (e.g., hybrid mail). Both industries have a common mission: to deliver "communication services" from one given user to another. Markets and technology provided these personal contacts through two different kinds of, often monopolistic, companies: one focusing on voice contact and the other on written communication. In addition, in the European Union, the same kind of National Regulatory Authorities (NRAs) was and usually still is often responsible for both sectors.[1]

In the last two decades, the Internet revolution reached all communications markets, by completely changing the habits and standards of the final users and necessarily also the business strategies of both postal and telecommunications operators. Digital disruption is having a decisive impact in both sectors, with instant messaging replacing SMS, digitalization changing the characteristic of many postal services, and e-mail substituting for letter delivery. The reaction to these profound changes leads to some kind of inter-sectoral convergence: such as e-billing or hybrid mail solutions. In many cases, the same service, to survive, was moved from the

[1] The same NRAs often are also responsible for media regulation, i.e., communication to the public.

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physical to the digital word, i.e., from the postal infrastructure to the telecommunications one.[2]

This convergence between the postal and the telecommunications services needs to be recognized and reflected at a regulatory level. This paper moves from a comparative analysis between the newly approved EU Electronic Communications Code (with its revised Universal Service Obligation) and the present EU postal legislation, to discussing the basic rationale, or better the lack of it, for maintaining distinct requirements for the Universal Service Obligation (USO) in different communications markets. The more immediate aim is to understand the logical overlaps between USO in postal services and in telecommunications and to explore which type of regulation could best take advantage of the continuing market convergence of these sectors. We sketch, in light with new market developments and users' needs, the essential elements of a modernized intermodal universal service, in order to identify a possible framework for a future full convergence of USO regulation in the postal and telecommunications fields.

In Section 2, we summarize the main changes in consumers' habits and, consequently, in the postal and telecommunications service offers. In Section 3, we focus on regulation, with particular attention to present USO principles, in both the electronic communications and postal sectors. This analysis will set the scene for Section 4, where we attempt to conceptualize a new intermodal definition of USO and Section 5 where we design a simple proposal. Section 6 briefly concludes.

2 Common Trends Affecting Postal and Electronic Communications Markets

In the European Union, the recent 10–15 years saw a sharp decline in letter volumes that went almost in parallel with a rapid growth of broadband penetration. Avoiding buying a stamp and physically going to a mailbox, as well as the advantage of instantaneous delivery, are clearly the main reasons why e-mails are almost completely replacing traditional letters. Instant messaging and social networks broke the habit of sending postcards when travelling. Tailor-made advertising campaigns, and the decline of paper journals, have also heavily impacted other kinds of bulk mails

[2] In 2016, the ERGP issued a *Report on Universal Services in light of changing postal end users´ needs*. Its aim was precisely to understand users' want and needs, in other words to look at the USO from the demand side. To do so, it gathered a number of study issues in various Member States to compare them and identify common sets. However, the methodologies used in the different reports were so different that a clear comparison turned out to be hard, which made the ERGP propose a suggestion to design users' surveys. In 2017, an ERGP *Report on the quality of service, consumer protection, and complaint handling – an analysis of trends* followed. An interesting discussion, on the concept of "postal user's needs," well related to our paper, is in Gottschalk (2019), in this volume.

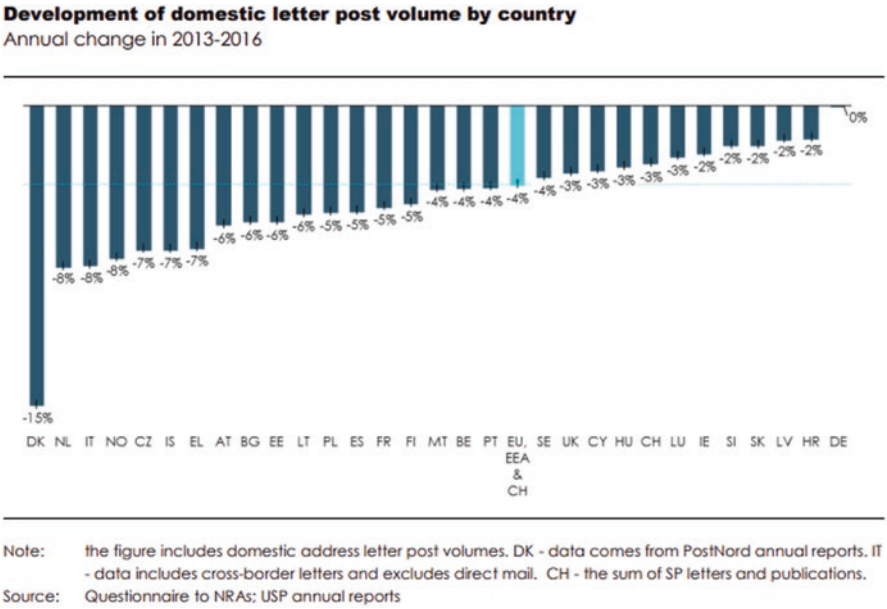

Fig. 1 Domestic letter volumes in the European Union. Copenhagen Economics (2018): Main Developments in the Postal Sector (2013–2016) Study for the European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship, and SMEs

and publication distribution. Figure 1 displays the substantial mail decline in the last few years across all EU countries.

Digital substitution has been undoubtedly disruptive for previous mail business, such as letters and bulk mail. However, a careful distinction for particular cases, such as rural areas, needs to be recognized. This is particularly relevant considering that the focus of this paper is on the need to update the Universal Service Obligation in the postal sector and the possibility of a single USO valid for all communications services. To ensure an effective right of access to postal services, the USO provider has to guarantee that a minimum range of services of a given quality are provided at affordable prices, irrespective of the geographical location of the user.[3]

A bridge toward the electronic communications sector is already contained in postal regulation. Recital 19 of the Postal Services Directive[4] affirms that:

> Rural postal networks, in, inter alia, mountain and island regions, play an important role in integrating businesses into the national/global economy and in maintaining cohesion in social and employment terms. Furthermore, rural postal points in remote regions can provide an important infrastructure network for access to new electronic communications services.

[3] Postal Services Directive (97/67/EC, amended by Directives 2002/39/EC and 2008/6/EC).

[4] *Id.*

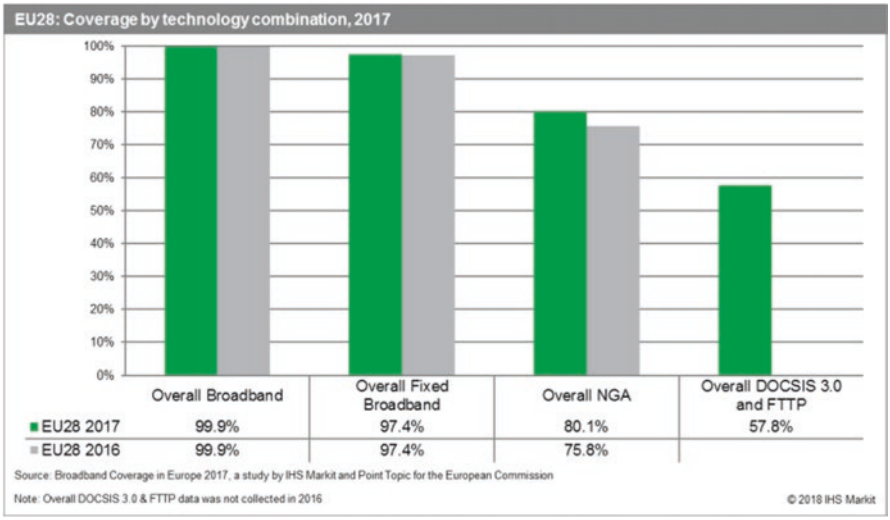

Fig. 2 European Commission (2017): Broadband Coverage

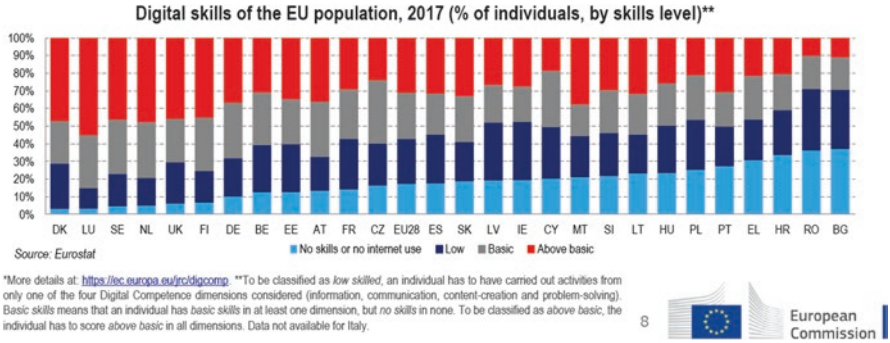

Fig. 3 Digital skills of the EU population (2017). European Commission (2018): Digital Economy and Society Index Report Human Capital

Nonetheless, as shown in Fig. 2, recent EU Commission data indicate that Internet access is widely available within EU countries.[5]

What is still seriously lagging in part of the EU Member States, shown by Fig. 3, is widespread digital literacy. According to the European Commission, around 40% of the EU population has an insufficient level of digital skills and 22% have none at all. These are usually older citizens, less educated young people, lower-income families, and migrants.[6]

[5] European Commission (2017), COMMISSION STAFF WORKING DOCUMENT, Europe's Digital Progress Report.

[6] https://ec.europa.eu/social/main.jsp?catId=1315&langId=en (last access 31/07/2019).

One interesting instance is Denmark. Since 2014, it has been mandatory for all citizens to have an e-box to receive communications from the Danish authorities as well as from other institutions. Even there, however, an exception is made for elderly and disabled people, who can still use traditional postal services for the same purpose (Falch and Henten 2018).

This specific issue is connected to our previous research on diversification and business models of postal operators (Gori and Parcu 2018). Because of the historic trust users attribute to postal operators (POs), and because of their local presence and proximity to the citizens, POs could play a role in providing digital literacy skills and acting as an e-government access point, as well as in being active in any inclusive e-government strategy.

3 The Market Reaction of Operators and the Expected Evolution of the USO

While volume of letters is decreasing, e-commerce is growing and the parcel delivery sector along with it. Differences across countries within the EU in this growth are related to issues such as trust in online purchasing and customer traditions. ERG (2015) emphasized that increased consumers' willingness to buy goods online means not only that parcel delivery will grow but also that their habits will continue to change. Consumers are demanding higher quality of service including faster speed, track and trace, and more delivery flexibility. They are also becoming more familiar with complementarity of use between physical and digital communications.[7] However, in respect to all these activities, it is important to remember that in the letter market there is still evidence of considerable concentration—usually with the legacy Universal Service Provider—while things are different in the parcel services, where competition is strong and the USO providers are rarely the main actors in the markets.

These developments constitute an opportunity for the Universal Service Providers to speed up innovation and enhance their customer care. e-Commerce is a sector in which electronic communications and postal markets naturally converge. In this case the service originates on the electronic communications network to then move to the postal one. Most importantly, this is a case in which both markets need to be involved in order to finalize the service.

Referring again to the comparison with the telecommunications sector, Falch and Henten (2018) draw an interesting parallel between the growth of parcel delivery to private consumers and its positive impact on postal operators' revenue, with broadband penetration favoring OTT services that replace video services from traditional telecom

[7] "The role of postal services is significantly changing. Their significance as a means of communication or exchange of information is diminishing due to e-substitution. In contrast, the relevance of postal services as a means to deliver goods is continuingly increasing due to the growth of e-commerce," ERGP (2019a at *t*).

players but at the same time provide new revenues from broadband access. The new businesses, e-commerce or broadband access, connect markets and provide revenues, expertise, and finally time for traditional operators to change.

The decline in letter volumes that goes almost in parallel with the growth of e-commerce and parcel delivery is only one, albeit certainly the most important element of a more general convergence. Acknowledging that letter delivery remains a market in which concentration is still quite high, while parcel delivery is quite competitive, it may be worth looking at the phenomenon from a broader perspective.

The online revolution has a double effect: on one side the telecommunications market is replacing the postal one (e-substitution), and on the other it is complementing it (e-commerce and hybrid solutions). We are witnessing an increasing demand for communications services in its most general dimension, which, in the way it is approached by users, is rather technologically neutral and not sector specific. The disruption of the Internet and the consequent change in users' habits are having an impact on business strategies of the different postal operators. One particular example is the so-called hybrid and reverse hybrid mail. In the first case, the sender prepares a message online, which is then printed and physically delivered to the recipient. In the second case, the postal operator receives the physical letter from the sender and if the recipient agrees, opens, scans, and sends the message to the recipient via electronic means.

This kind of services is strictly related to the spread of PO boxes. Home delivery becomes less frequent. Users are informed, via SMS or e-mail, about the arrival of a mail and can ask for it to be scanned and sent via e-mail (and then delivered when planned by the PO) or can pick it up at the post office.

The Universal Postal Union (2015) classified new e-services offered by postal operators into four groups: (i) e-post and e-government, (ii) e-commerce, (iii) e-finance and payments, and (iv) support services. e-Post and e-government includes services such as e-mailboxes, e-invoicing, hybrid and revers hybrid mail, digital signatures, digital identities, etc. e-Commerce covers shopping portals, analytics and performance reports, virtual international addresses, etc. Online account management, e-bill paying, escrow services for e-commerce, etc. are all services that fall in the e-commerce group. Support services include track and trace, online change of address, digital personalized postage, electronic notifications, online chats, and customer service.

What emerges from this long list of mixed services is that postal operators, by leveraging their traditional assets and capabilities, are trying to react to the convergence between telecommunications and postal markets in order to profit from it rather than being destroyed. They are developing and exploiting complementarity, with different degrees of success, to avoid outright substitution for their services.

As mentioned by Maegli et al. (2010), the presence of externalities, both in the telecommunications and in the postal market, triggers the regulatory need for Universal Service Obligation. On the one side, (positive) externalities are linked to the network: the more users on a network, the more it is valuable and useful for other users. In this case, USO aims at connecting all the users to the most effective network for their specific needs. On the other side, there are externalities linked to specific

services (postal or telecom operators offer a number of different products), in which case USO may be needed to guarantee a minimum quality and accessible prices to certain essential services, irrespective of technology or geographical location.

Currently, following the Postal Services Directive, Member States have to ensure that the general public is provided with a postal service of a specified quality (regardless to where a person lives) at an affordable price. This requires that contact and access points are able to cope with the foreseeable needs of users as interpreted by regulation. Presently, the principle is ensured by specifically requiring that the universal service is guaranteed at least five working days a week (including one collection and one delivery per day). While the Directive leaves some flexibility to Member States on what to include or not include in the USO, Article 3 lists a minimum set of services that are still mandatory: (i) insured and registered mails; (ii) clearance, sorting transport, and distribution of postal items up to 2 kg; and (iii) clearance, sorting transport, and distribution of postal packages up to 10 kg.

In the telecommunications sector, the EU has recently adopted the European Electronic Communications Code (European Parliament and Council 2018b). This comes after the European Commission assessed that the current regulatory framework (the updated telecoms package) was becoming obsolete in the face of market developments, particularly the spread of the Internet, with new players offering services similar to those offered by traditional suppliers.[8] The Code revised the Universal Service Obligation by attempting to update regulation in response to technology and market evolution. Old obligations such as public payphones and user directories were removed, replaced by obligations for Member States to guarantee that consumers have access, at an affordable price, to an adequate broadband service and that no discrimination should be made on the basis of the technology used. According to Article 84.2 of the Code, "Member States may also ensure the affordability of the services referred to in paragraph 1 that are not provided at a fixed location where they consider this to be necessary to ensure consumers' full social and economic participation in society." This evolution sounds similar to the requirement of the Postal Services Directive, where Article 5 states that Universal Service Obligation "[…] shall evolve in response to the technical, economic and social environment and to the needs of users."

In summary, there appears to be a guiding pattern from how operators respond to the technological challenge and the best evolution of the regulatory requirements related to the USO. The origin of this common thread lies in the evolution of consumers' habits and needs. Regulation of the USO should follow this same evolution. It is up to the USO regulation to ensure that behind the digital disruption are not hidden new exclusions and digital divides that can be as dangerous as those in the past. USO regulation should be maintained but only in the presence of proven market failures or explicit distributive public choices. Where the evolving communications market and competition not able to guarantee economic and social inclusion of the public in the new digital environment, then an adapted USO regulation should continue to fill the gap.

[8] http://europa.eu/rapid/press-release_IP-18-4070_en.htm (last access 31/07/2019).

4 Toward an Intermodal USO Definition?

Rapidly changing users' communication habits and new complementarities are being created between telecommunications and postal networks and services. It is worth considering whether a separated Universal Service Obligation for the two markets is still socially needed and economically justified. Parcu and Silvestri (2017) argued that USO standards should be regularly updated, considering both the substitutability and the complementarity between the postal delivery and the online instruments. In the Internet era, the mission of assuring to citizens an effective *right to communication* calls for a single, technologically neutral, universal obligation for communications services (De Streel and Peitz 2015). This today, to be truly effective and economically viable, could only assume an intermodal characteristic. For example, if one considers a service that encompasses both communication networks, combining immediate electronic delivery with reliable postal physical delivery, a request to postal operators to deliver letter mails 5 days per week becomes obsolete.

As mentioned by Maegli et al. (2010), proximity and complementarity between the telecommunications and postal network could lead to a win-win situation for both the operators and the users. On the one hand, the electronic communications network would speed up the delivery process of most communication by mainly acting as an immediate last-mile delivery tool. On the other hand, postal operators have the means, among which users' trust, to ensure citizens that any hybrid solution combining electronic/physical elements is secure and will not violate their privacy. On the same theme, De Streel and Peitz (2015)[9] proposed to revise the USO, precisely because of intermodal competition of postal services with other communications services. In doing so, they suggested to consider a broader concept, to which they referred to as a "right to communicate." Finally, as it was also underlined in the above-quoted report by the Universal Postal Union (2015), postal operators, as providers of a trusted communication infrastructure, could be of great help for governments to fill the data protection and security issues behind any successful e-government strategy.

Within the framework of the services of general economic interest (SGEI), the basis for this common Universal Service Obligation could be found in what, in the EECC, is referred to as the requirement of "full social and economic participation in society." To this end, the new USO in communications services would carry the mission to guarantee that no citizen is excluded from the possibility to getting and sending communication/information. In this context, technological neutrality should be applied in its broader sense: the right is to be assured without any exogenous preference for using traditional postal networks, electronic communications networks, or any combined solution. The result should be that every citizen, irrespective of age, education, health status, and geographic location, should have the right to send and receive communication, according to some minimum standards of quality and affordability embodied in an intermodal USO.

[9] De Streel and Peitz (De streel and Peitz 2015, p. 3).

It is interesting to note how policy approaches reflected contemporaneous market situations. The review in the telecoms sector started moving the USO toward the social embeddedness principle, while the Green Paper for postal services slightly mentions the social aspects but is still pretty much oriented to the market dimension, with a focus on access, quality of service, and tariffs. This was then the approach in the first Postal Services Directive. In its last revision (2008), Article 4 was then modified to state that Member States shall make sure that the Universal Service Obligation is, among other things, "taking into account the important role it plays in social and territorial cohesion." The evolution also continued in the telecommunications sector. While the 2002 framework was referring to a risk of social exclusion and to public interest, the Electronic Communications Code (Article 84.2) now mentions "full social and economic participation in society."

A smart converging regulation, aligned with market evolution, with this special focus on USO widely interpreted needs, would also be in line, and clearly helped, by the trend in the EU countries to have the same National Regulatory Authorities responsible for both the postal and the telecommunications sectors. Regulatory thinking is also rapidly evolving under the pressure of market reality, recently the European Regulators Group for Postal Services (ERGP) (2019b, p. 20) affirmed: "The fact that in certain areas the provision of postal services is not economically viable may provide a rationale for maintaining a universal service. But e-connectivity may also be an important instrument to ensure genuine inclusion of citizens in a future society."[10]

A unified intermodal USO could also foresee tailored solutions that depend on the particular status of a given groups of citizens. For example, a 5-day home delivery rule could be preserved, as a special service, which is hard or impossible for the specific user to receive communication via electronic means (e.g., elderly, disabled people, household without Internet connection) or where an official written communication is still required. Nonetheless, with inter-modality one could significantly reduce delivery frequency while increasing innovation and quality. It will be important to understand whether this could apply to both residential and business users or whether different policies should address these two groups.

This unified strategy consequently will impact USO volumes, reducing some activities and increasing others, as well as the economic sustainability of USO items for the Universal Service Provider (and for Member States). Following a reform of the USO in New Zealand, delivery in the country is now 3 days per week in urban areas and at least 5 days per week to PO boxes and in rural areas (ERGP 2014). It is this kind of smart adaptation of regulation that could be strengthened and refined by the simultaneous exploitation of the telecoms and postal networks, exploiting both their substitutability and their complementarity.

[10] ERGP (2019b, p. 20) continues, "In this respect also, Member States show significant differences. It is therefore important that a regulatory framework affords Member States sufficient flexibility to find solutions suitable to their respective national circumstances. This may for example include that specific measures are taken to provide for the interests of specific users' groups, instead of imposing a general universal service obligation on one or more postal operators."

In summary, a new concept of USO, founded on a right to communication, could better incorporate modern public service needs. Some, if not all, of the resources for financing the new USO could come from already existing general funds. As already mentioned, this new USO could comprise additional features but could save on others.

5 A Simple Proposal

In order to design a single comprehensive definition of the Universal Service Obligation, finalized to a new right to communications services, one should start from a few main principles. Three simple and well-known concepts, access, quality, and price, could constitute the fundamental social and economic elements that the new universal service should ensure:

A. Citizens shall be granted an effective right to communications services, i.e., they should always be able to communicate from one to another.
B. This right to continuous communication should be guaranteed using different networks, regardless of the technology used.
C. Communications services should be affordable, to guarantee that every citizen can fully participate in the society.

While broadband penetration is high, digital skill may not be, as shown in Fig. 3. The cultural digital divide, still higher than the technological and infrastructural one, should be adequately protected in the new USO during this era of transition. As an indispensable complement to this new general USO, a fourth element should be:

D. An appropriate special regime should be set up to protect people with special needs, not only the elderly, disabled people, and citizens living in particular rural areas but also those people who do not have sufficient digital skills to be able to rely on an intermodal universal service.

With regard to procedure, a smart proposal would require regular frequent review of the scope of the unified USO. In the EU, the current regulatory framework for the postal market is essentially based on a 1997 directive, slightly revised in 2002 and in 2008. Consequently, the USO is regulated by a legislative text that was elaborated when the market and users' habits were extremely different compared to nowadays. The speed of digitalization and technological development shows how fast markets can evolve. Therefore, we should have a further principle:

E. A revision, at least every 3 years, of the content and extension of the intermodal Universal Service Obligation should be mandatory, as is currently the practice in electronic communications.

Finally, on the institutional side, an effective principle would simply require that:

F. A single independent regulatory authority should supervise the application of the intermodal USO for the right to communication.

Since all NRAs in the EU, with the only exception being in Denmark, are already responsible for both electronic communications and postal markets, this part of the reform should not have a big impact. One might also consider if, at the EU regulatory level, it may be worth unifying the postal sector and the electronic communications sector under the umbrella of a revised DG Connect. The European Regulators Group for Postal Services (ERGP) and the Body of European Regulatory for Electronic Communications (BEREC) are already collaborating. The latter has a more solid status, with the BEREC office, an EU agency, providing administrative and professional support. One could think of both institutions evolving toward a single body, responsible for coordinating regulation and USO in the postal and the electronic communications sector.

6 Conclusions

The aim of this analysis is to consider converging toward a single Universal Service Obligation utilizing both the electronic communications and the postal sector and the principles for such a change. The elements triggering this process are to be found in the spread of broadband penetration and in the consequent change in users' habits. e-Mails and instant messaging are replacing letters (substitution); on the other hand, online purchase of goods is enhancing the physical parcel delivery markets (complementarity). Overall, citizens are using more and more communications services and are becoming more demanding in terms of digital solutions, flexibility, and high-quality standards. Moreover, present Universal Service Obligation, in both sectors, represents a significant cost, both private and public, for Member States economies.

The conceptual proposal contained in this work is to reconsider the approach to the USO from an overall communications markets and rights perspective, while keeping in mind its very essence, which is the need for social and economic inclusion of all citizens. We propose to redesign and unify the USO of both sectors by creating and ensuring, with an intermodal solution, a new right to communication. This evolution would require a technologically neutral solution, which also takes into full consideration the transitional phase we are currently living. This means taking into consideration also the gaps in broadband penetration, especially in digital skills—a factor that will change slowly. In any case, our proposal purports the need of a regular refit exercise of the changing USO.

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Potential Insights for US USO from Recent Federal Communication Commission's Broadband Auctions

Victor Glass

1 Introduction

The United States Postal Service (USPS) is losing billions and missing service targets. Both the Postal Regulatory Commission (United States Postal Regulatory Commission 2017, 2017a) and a special task force ("Presidential Commission") initiated by President Trump (White House 2018) have developed proposals to make USPS financially healthy "while meeting the needs of urban and rural communities, large mailers, and small businesses" (White House 2018, p. 68).

This paper is a follow-up to the author's previous chapter (Glass 2019) on last-mile delivery options that the USPS might consider. That article used as a case study the Federal Communications Commission's (FCC) proposed use of auctions to extend broadband services in unserved areas. Since that time, the FCC conducted its auction, which proved highly successful. Many new carriers have promised to provide service in these areas at service levels rejected by incumbents as too costly. The actual design of the broadband auction may convey important lessons for subcontracting last-mile postal service delivery through the use of auctions.

Section 2 summarizes the current debate on how to improve USPS's financial condition while meeting customer needs for postal services. Section 3 reviews Crew and Kleindorfer's views on postal privatization and contrasts them with reactions by interested parties that oppose privatization. This discussion foreshadows the conflicts that will likely surface if the USPS actually decided to use auctions to subcontract or possibly spin off last-mile delivery. Section 4 describes the FCC's broadband auction and analyzes its outcome. Section 5 considers how these results could be translated into a proposal to subcontract last-mile postal services. Section 6 has concluding remarks.

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2 Current Political Debate over Restoring USPS to Financial Health and Privatizing It

Competition is already fierce for portions of last-mile parcel delivery service. Besides major parcel competitors such as FedEx and UPS, USPS is facing the prospect that large e-commerce companies will deliver more of their own parcels. Amazon, for example, has its own direct delivery business, including "Shipping with Amazon" and Amazon lockers located in apartment buildings, gas stations, and grocery stores.

Unlike other parcel delivery and e-commerce companies, USPS is mired by a web of regulations associated with mail delivery, burdened with its universal service obligation, and pre-funding its employee retirement funding program. On top of this, its cash cow, first-class mail, is a rapidly declining business. As a result, USPS is hemorrhaging funds. Something has to give: USPS knows it, and the government knows it; the question is what to do.

The USO, in particular, illustrates the problem with defining alternatives for returning the Postal Service to financial health. The Presidential Commission cites having to delivering mail to 150 million locations 6 days per week as not supportable, as mail volume declines (White House 2018, p. 68). Crew and Kleindorfer (2003, pp. 187 and 191) had already cited delivery in noneconomic areas as a challenge to USPS's solvency. Geddes (2004, p. 64) cited sources claiming that rural and urban delivery costs are comparable but later pointed out that roadside delivery in rural areas is inferior (Geddes 2005, p. 224).

Solvency itself is also debatable. The Presidential Commission noted that the USPS has $100 billion in unfunded liabilities, a capital investment backlog, and has no clear road to profitability (White House 2018, p. 68). Buc (2018), however, pointed out that USPS has $326.7 billion in retirement assets invested in Treasury securities. If these funds were invested like other public pension funds, the assets would generate $13.7 billion of additional funds per year. By contrast, USPS reported a $3.9 billion loss in 2018.

As might be expected in the current US political environment, there are partisan differences in solutions to USPS's persistent reported losses and declining mail volumes. Democrats see USPS as a national treasure. It must never be privatized. It must maintain a 6-day, door-to-door delivery. The solution is to end pre-funding of retirement benefits and allow USPS to offer new services such as paycheck cashing (Democratic Party Platform 2016, p. 6).

Republicans want to privatize USPS (White House 2018, p. 68). It would allow USPS to adapt to changing customer needs without political interference. It could also cut costs by delivery fewer days per week to more central locations. It should have the ability to adjust prices as necessary. It could negotiate pay and benefits with its workforce more effectively. The key challenge is to make the Postal Service profitable. Then it could be spun off as an investor-owned utility (White House 2018, p. 69).

In a follow-up report, the executive branch described near-term reforms, which included expanded private sector contracting in areas such as processing and sortation (Report of Task Force 2018, p. 5). Last-mile subcontracting would fit this vision. Subcontracting is already a big business. In 2016, USPS spent $14 billion on outside purchase. About half was spent on transportation services, for example, with Federal Express paying $1.68 billion to USPS. Other companies provide telecommunications and energy billing services (Hendel 2017). Pitney Bowes presorts approximately 15 billion pieces of mail per year and delivers them to designated locations to gain discounted postage costs, effectively allowing USPS to subcontract presorting.[1]

USPS currently subcontracts last-mile postal delivery in rural areas. Its Contract Delivery Service allows independent contractors in rural areas to sort and deliver mail and parcels and collect mail, sell stamps, and offer other services (DeSimone 2018).[2] The issue to be considered here is whether subcontracting the last-mile can be expanded to all service areas, whether they are profitable or not.

3 Crew and Kleindorfer and Interested Party Perspectives

Many economists have favored privatization for more than a decade but made little headway in persuading the Congress to consider converting USPS into an investor-owned utility. Crew and Kleindorfer wrote a string of articles citing the need for privatization even before the turndown in mail volume. They pointed to USPS's inefficient organizational and governing structure that "precludes alignment of market and efficiency incentives with investment and operations" (Crew and Kleindorfer 2003, p. 187). The record shows that major decision-making is politicized, such as closing post offices and downsizing its labor force. The basic problem is that these political decisions were unfunded. As a result, the Universal Service Obligation (USO) continues at high service levels despite draining resources.

According to Crew and Kleindorfer (2000), internal inefficiency is likely because of the lack of residual claimants. Residual claimants – stockholders and upper management in a private organization – are subject to pressures to keep labor costs down and keep borrowing costs low (Crew and Kleindorfer 2000, p. 6). Other networked industries – telecom and electric utility companies – are privately owned (Crew and Kleindorfer 2000, p. 4). Other countries have privatized their postal services (Crew and Kleindorfer 2003, p. 187).

Crew and Kleindorfer (2000, p. 1) said that the continued monopoly on local mail delivery and mailbox control and current delivery service levels should be revisited because of alternative delivery systems such as e-mail and e-commerce. In

[1] See Pitney Bowes website, available at https://www.pitneybowes.com/us/shipping-and-mailing/mail-and-parcel-sorters/presort-services.html

[2] Instructions for becoming a Contact Delivery Service are available online (WikiHow, *How to become a Contact Delivery Service*).

their view, the postal sector arguably fits the competitive model with minimum externalities (Crew and Kleindorfer 2013, p. 3). Intermodal competition is growing rapidly, and USPS must be nimble enough to respond to market changes. They observed that USPS has focused mainly on cost cutting. They do not believe cost cutting is the way to greatness (Crew and Kleindorfer 2013, p. 11). The Freedom Foundation, a conservative think tank, supports Crew and Kleindorfer's view. They point out that Deutsche Post was able to implement policies that saved a vast amount of money and still delivers letters to all areas of the country, meeting a policy requirement that no one be excluded (Hunter 2018).

Others see the results of privatization through different lenses, as an attack on its universal service obligation. The Center for Economic and Policy Research warned that privatization means staff reductions, wage reductions, shortened postal retail hours, decreases in delivery access, and higher postal rates (Barber 2018). USPS employees believe USPS management is slashing costs, but at the expense of service quality and worker security. Between 2004 and 2018, postal employment has dropped from approximately 700,000 to 500,000.[3] In 2009, USPS had 4800 offices, but was reviewing 3200 to determine whether to keep them open. There were 304 closures in 2017 and 378 offices under suspension. In their view, no discontinuances occurred between 2013 and 2015 because USPS did not want to raise public concerns. USPS wants to close permanently the suspended post offices during fiscal years 2018 and 2019. Notably, three out of four office closings were in rural areas (Save the Post Office 2018).

Bittle (2018) made the case that USPS is already collapsing in rural areas. More than 100,000 postal employees are responsible for delivering mail in rural areas. About half are part-time employees. Rural Carrier Associates (RCAs) are part-time substitutes for full-time employees, and Assistant Rural Carriers (ARCs), a position created in 2015, work only on weekends and holidays. Pay for part-time employees was $21/hour before 2010. It now stands at $17/hour, based on the estimated time it takes to complete a route. Once package volume started to ramp up after 2010, rural delivery became difficult. The pay did not consider extra delivery time for parcels. Built into the pay system is a 30-second estimate to deliver a parcel in a rural area. Many stations are understaffed; 12-hour days are frequent. In North Dakota, rural carrier overtime has increased 241 percent between 2011 and 2014 (Bittle 2018).

4 FCC's Approach to Last-Mile Unserved Areas

The FCC has also been grappling with assuring universal service in rural, high-cost areas. The Telecom Act of 1996 requires that services and rates in rural areas must be of comparable quality to those in urban areas. The problem is that rural areas are

[3] Source Number of Postal Employees. Available at https://about.usps.com/who-we-are/postal-history/employees-since-1926.pdf

much more expensive to serve and, in a competitive environment, carriers cannot cross-subsidize rural areas by raising rates in competitive urban areas. In response, the FCC has had a universal service fund to subsidize service in high-cost areas. The actual funding of unserved areas was based on a forward-looking cost model, which was designed to estimate the cost that a putatively efficient carrier would incur to build a fiber to the premises of the broadband network in unserved areas. The subsidies were offered to incumbent carriers. They chose not to accept the offer to serve almost 500,000 census blocks (Glass and Tardiff 2019).[4]

As a result, the FCC introduced an auction using the cost estimates from its forward-looking cost model to set a reserve price (maximum price) for building and maintaining a network in an unserved territory. The FCC hoped to attract new satellite, wireless, and landline carriers that would be willing to provide broadband services in unserved areas. The problem facing the FCC was that each technology has difference capabilities, with satellite having the most limitation on speed and latency (delay) and landline fiber having the highest capabilities. As a result, the FCC developed a set of penalties attached to a bid (see note to Table 1), which effectively lowered support for service offerings with inferior performance compared to a high-speed fiber optic connection.

Performance tier	Speed	Monthly usage allowance	Weight (penalty)
Minimum	≥10/1 Mbps	≥150 gigabytes (GB)	65
Baseline	≥25/3 Mbps	≥150 GB or US Median, whichever is higher	45
Above baseline	≥100/20 Mbps	≥2 terabytes (TB)	15
Gigabit	≥1 Gbps/500 mbps	≥2 TB	0

Mbps ≡ megabits per second
Gbps ≡ gigabits per second
GB ≡ Gigabyte (8 bits to a byte)

Latency	Requirement	Weight (penalty)
Low latency	≤100 ms	0
High latency	≤750 ms and median opinion score ≥ 4	25

Source: Federal Communications Commission 2018, par. 12
ms ≡ miliseconds

The FCC used the following formula to evaluate bids.

$$\text{Support}_i = \text{Reserve Price}\left(\text{percentage bid} - w_i\right)$$

where w_i is the penalty weight.

[4] Census blocks, the smallest geographic area for which the Bureau of the Census collects and tabulates decennial census data. In a city, it typically refers to a block surrounded by streets. For more information, see https://www.census.gov/newsroom/blogs/random-samplings/2011/07/what-are-census-blocks.html

The actual bidding process began with the first offer of support per line based on a cost simulation model that the FCC had adopted to estimate the cost of construction. The "percentage bid" is less than 100%. In other words, the bidder is offering to discount the reserve price to win the bid. The penalty weight reduces support further if the carrier is offering to build a network with low-speed/high-latency connections.

The FCC intended to give lower-capability technologies the chance to win bids in remote areas that are very costly to serve with landline technology.[5] However, if the going percentage bid declined to 65% of the reserve price, satellite companies would no longer be able to receive support. In other words, the winning bid would go to the technology capable of producing higher speeds and lower latency.

The results of the auction were very encouraging. Glass and Tardiff (2019) report that close to half of the bidders offered baseline speed levels, about 35 percent offered speeds above the baseline, and approximately 20 percent offered gigabit speeds. Only 0.3 percent of the locations included in the winning bids were won by firms offering the minimal speed level that subsidized incumbents had been obligated to provide. Their analysis also supported the hypothesis that the initial reserve price was a good starting point for the bidding process because winning bids were somewhat below the reserve price after holding other factors constant. In other words, FCC's simulation model estimated build-out costs well, and its penalty weights worked effectively. Wireless companies and electric utility companies offering fiber won a large majority of the bids (see Glass and Tardiff 2019, Tables 6 and 7).

5 A Roadmap for Subcontracting Last-Mile Delivery

Any carryover from the FCC's auction to postal rural area delivery would require a major change in government policy. First of all, it would require the establishment of an explicit fund to subsidize high-cost routes. The PRC would need to develop a simulation model to estimate the costs of delivering mail using likely alternative technologies. Then it would have to set tiered service levels. Moreover, it would need buy-in from unions.

While USPS has detailed cost information for last-mile service routes, policy makers would benefit from a simulation model that would estimate the cost of alternative service delivery methods for mail and parcels. The model may include larger mailboxes, lockers located in highly trafficked business locations, mobile post offices, crowd sourcing, and collaborative efforts with other industries. For example, Glass (2012) proposed that rural telco offices and rural post offices could work

[5] The actual term used was a technologically neutral auction. See Connect America Fund Phase II Auctions highlights at https://www.fcc.gov/auction/903

together to lower joint costs while introducing new services such as viewing mail online and receiving credits for viewing follow-up advertisements online after a physical advertisement was delivered. The simulation model would serve as the basis for developing penalty weights for alternative last-mile delivery methods.

Setting labor rates would be crucial for setting the reserve price. For an auction to have any prospect of success, current USPS employees should not be disadvantaged by the auction. One nonstarter would be if competing carriers could set wages for full-time employees below current union rates. Another problem area is the use of part-time employees. USPS is already using CRAs and ARCs to cut costs. Again, to forestall postal employees claiming union busting, ground rules for these types of employee categories need to be addressed.

Weighting of the Postal Regulatory Commission's (PRC's) general service objectives and factors would have to be balanced to develop service tiers. The PRC would have to weight 9 performance objectives and 14 factors to evaluate specific target objectives that would define baseline service (PAEA 2017 or 2017a). For example, what penalty should be assigned to delivery of mail 1 day slower than the current benchmark?

An explicit Universal Service Obligation fund would be necessary. It would require either ear-marked government tax funds or an assessment on users of the postal system. The funds would be used to fund winning bids for subsidy funding. Total funding would be, at the most, the estimated reserve cost of a service route. If the auction fails in certain service territories, the cost model would need to be revisited and funding resized if a new auction is desired.

6 Concluding Remarks

Auctions could be a way of satisfying both Democrats and Republicans. Subcontracting would keep USPS as a public corporation. Fulfilling an explicit USO through an auction could reduce USPS losses in high-cost areas. However, as opponents would rightly say, subcontracting is a form of piecemeal privatization. Crew and Kleindorfer recognized that privatization has a range of meaning: from complete sale of assets to subcontracting (Crew and Kleindorfer 2003, p. 188).

Nonetheless, the auction would be an opportunity for postal workers and others to improve their employment prospects. The auction would open new delivery opportunities foreclosed by current service restrictions such as offering smart city sensing services while delivering mail. A winning bidder could conceivably add a variety of new services not efficiently exploited by the USPS such as same-day parcel delivery, offer pickup parcel returns, and offer new mailbox types and new combinations of online and physical delivery services. The list is as long as a realistic imagination.