

Postal-Sector Policy: From Monopoly to Regulated Competition and Beyond

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Abstract

This paper discusses the main aspects of the competitive and regulatory state of the postal sector. It presents the different models for postal competition and regulation in the EU and the US and their history, together with their implications on regulation, with a focus on universal services and network access. While postal monopolies used to be the main source of funding for universal service obligations, the need for alternative funding sources after full liberalization has increased the interest of regulators and the public in knowing the cost of these obligations. In parallel, new means of electronic communication and consumer needs call the traditional scope of universal services into question. This paper outlines the economic rationale of current policies and directions for future postal regulation to strengthen the postal services' commercial viability in a competitive age, while safeguarding their relevant characteristics for the economy.

Introduction

The postal sector encompasses activities performed by historic and new operators involving the collection, sorting, transport, and delivery of addressed mail, unaddressed mail, parcels and express services. There is no physical network consisting of cables and rails, as found in more typical network industries. Instead, the postal network consists of postal outlets (or franchised counters) for the collection of items and mailmen who build up the delivery network anew every day by driving or walking. The postal sector may also be considered a network industry based on the network effect arising from the two-sidedness of delivery services (see Section 3.1). Unlike other network industries, it is mostly the sender who is the direct customer of postal operators, since the sender makes the decision to buy services or not, and it is also the sender who pays. Recipients usually do not have to choose a postal operator and do not pay for postal services.

Figure 1 shows the traditional postal value chain.



Figure 1. The traditional postal value chain
Source: author

Compared to sectors such as telecommunications, energy or rail, the postal sector is very labor-intensive. In Europe, it represents a significant part of the economy, accounting for approximately 0.6 percent of GDP (EUR 70 billion) and 0.75 percent of employment (EUR 1.6 million) [1].

This paper explores the postal sector's evolution from state-run monopolies to regulated competition and beyond, with a focus on developments in the US and the EU. It also discusses the regulatory policies related to universal services and network access. An analysis of the current economic rationale of these policies in the postal sector suggests directions for their further development.

Recent developments in the legal framework of the postal sector can be understood in terms of regulation, liberalization, and privatization:

- Regulation is the entirety of legal constraints on economic activity in the sector. The postal sector is characterized by a dense regulatory framework. Regulations may be concerned with fair competition, and be symmetrically targeted to all operators in the sector (*market regulation*). Alternatively, regulations may focus on correcting market failures by providing a socially desired level of service quality or redistribution. This second kind of intervention (*universal service regulation*) is often integrated as part of universal service obligations (USO), which have long been the main motivation for establishing state monopolies (reserved areas). Such monopolies have implemented necessary further regulations to deal with market dominance.

- Liberalization is the abolishment of reserved areas and the opening of markets for new operators. In recent years, the postal sector has become liberalized in many countries. Moreover, new services based on electronic communication have become available, stimulating indirect competition by creating substitutes for mail or complementing the delivery of parcels, thereby rivaling brick-and-mortar businesses.

- Privatization is the process of transferring ownership of a postal operator from the public sector (government-owned) to the private sector. The precursor to privatization is corporatization, which transforms postal government agencies into corporations.

In parallel with liberalization and increased competition, sector-specific regulation in the postal sector has become a widely discussed topic among academics, policy makers, industry economists and regulators themselves. The focus of these debates has usually been on whether such regulation is necessary, and, if so, what its optimal design should be. Some argue for deregulation (that is, the abolishment of price regulation or USO), whereas others propose re-regulation, which involves the replacement of pre-existing (monopoly-related)

regulations with new regulations that aim to safeguard service levels and competition. The resulting compromise is often somewhere in between de- and re-regulation.

This paper follows the approach of [2] in analyzing the interaction of various elements of regulation with competition (see Figure 2). The market equilibrium in the postal sector is determined by regulatory policies in two domains: First (on the left-hand side of Figure 2), market regulation aims to ensure fair competition. It governs market access (for example through a reserved area or a licensing regime) and network access to monopolistic bottlenecks. It also regulates interconnection, such as through provisions related to addresses or post-office boxes, and flanking measures, such as labor conditions. Second (on the right-hand side of Figure 2), universal service regulation intends to ensure the provision of quality postal services to the entire population in all regions of a country. The first aspect to be governed is the concrete definition of obligations. In a second step, one or several operators have to be designated if the market does not spontaneously provide the desired level of service quality. If USO constitute a binding economic constraint and a relevant burden on the designated operator(s), a financing mechanism is needed to compensate. Depending on the mechanism, and if the universal service provider (USP) cannot finance USO by itself, this requires a calculation of the actual burden or the net cost of USO.

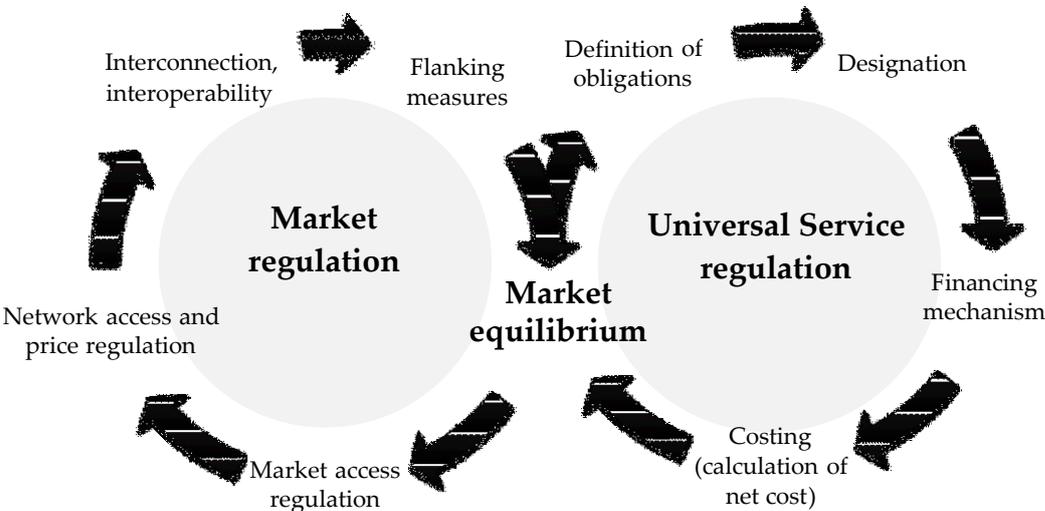


Figure 2. Illustration of interactions
Source: [2]

Liberalization and access to the market may require further regulation concerning network access and other flanking measures, such as regulation of labor conditions (see [3]) to ensure consistency in the regulatory and market framework. Due to the labor-intensity of the postal sector, labor laws may potentially hinder new entrants by denying them the full flexibility in employment conditions that would otherwise be permitted under general labor legislation (such as flexibility in wages and work rules). Hence, they may restrain the direct competition that liberalization is intended to foster. [4] found that sector-specific labor regulations do not pose a significant impediment to liberalization of the postal sector markets in the EU as whole, although provisions in certain member states (such as Belgium or the Netherlands) may warrant further consideration.

USO are politically motivated by efficiency or equity considerations, and potentially necessitate a proper financing mechanism if the cost of USO is significant. Due to strong interrelations, fundamental trade-offs have to be made: for example, USO are often shaped asymmetrically by binding only one operator in the marketplace. The financing USO either removes the burden from the USP by granting compensation, or shares the burden with other operators via a USO fund. Both USO and their financing affect competition and distort the market outcome.

The remainder of this paper focuses on the core policy issues and their interactions in the postal sector. It is structured as follows: Section 1 outlines the history of postal legislation and regulation in the EU and the US. Section 2 discusses recent developments and the current state of competition in the postal sector in general. Section 3 covers the rationale, scope and financing of USO. Section 4 discusses competitive and regulatory aspects of network access. Section 5 concludes.

1. Postal Regulation and Legislation in the EU and the US

In the late 15th century, the invention of the printing press and the expansion of education created demand for letter mail, and made carrying mail a profitable business in Europe. The most extensive delivery system was built by the Thurn and Taxis family. Their system developed throughout the 16th century until it covered most of Europe, using 20,000 couriers to operate a relay system that was fast, efficient, and highly profitable ([5]). The rise of nation-states with strong central governments was reflected by the establishment of national postal systems under the control of the state. Private enterprises still succeeded by introducing services that were not provided by the state systems, such as local collection and delivery services for prepaid letters that were stamped to indicate the place of posting and the time they had been sent out for delivery. As a reaction, state monopolies expanded their scope and improved their own services.

In 1837, Rowland Hill demonstrated that the then-current charging scales based on distance were irrelevant. He also realized that the collection of payments on delivery was easily avoidable by introducing a uniform rate of postage, regardless of distance, and prepayment of postage by adhesive stamps sold by the post office. Hill's proposals gained strong support, and a uniform rate using prepayment via stamps was introduced in 1840 ([5]).

The advent of the steamship and the railway provided the opportunity for faster international postal services, and the expansion of commerce ensured a growing demand for them. Postal relations between states were still subject to bilateral treaties, which necessitated the maintenance of detailed accounts between countries. Eventually, in 1874 a "Treaty concerning the Establishment of a General Postal Union" was signed ([5]). The Universal Postal Union still provides a uniform framework of rules and procedures for the exchange of international mail (see [6]).

1.1. Postal Policy in the EU

In the second half of the 20th century, the postal-sector policy in Europe was strongly influenced by the economic and political integration process. The main objective of postal policy in the EU is to establish a single market for postal services, and ensure a high-quality universal postal service. The policy objectives for postal services are pursued by opening up the sector to competition in a gradual way, see Table 1. The objectives were implemented in community law through a Framework Postal Directive in 1997, which established a regulatory framework for European postal services (Directive 97/67/EC). The Postal Directive governs a series of aspects of postal markets and universal service provision: it defines the minimum characteristics of the USO to be guaranteed by each member state (within their territory); sets common limits for services that may be reserved for the USP in each member state, and a timetable for further liberalization; lays down the principles that govern the authorization/licensing of non-reserved services; defines the pricing principles applicable to the USO, as well as the transparency of the accounts of USPs; governs the quality of service standards for national and cross-border services; and requires the creation of national regulatory authorities independent of the postal operators. Within the framework of the Postal Directive, member states have considerable freedom in adopting country-specific postal policies (see [7]).

In 2002, the European Parliament and the Council adopted the Second Postal Directive (2002/39/EC), which amended the initial Postal Directive by defining further steps in the process of market opening, and by further limiting the services that can be reserved. Reserved areas are only allowed to safeguard the USO. According to the Directive, member states must open to competition items of correspondence weighing less than 100 grams and costing less than three times the basic tariff as of January 1, 2003 (approximately 9 percent of the market), and items weighing less than 50 grams and costing less than two-and-a-half times the basic tariff as of January 1, 2006 (approximately an additional 7 percent of the market). In addition, all outgoing cross-border mail has been open to competition since January 1, 2003 (approximately an additional 3 percent market opening to competition) (see [1]).

In 2008, the European Parliament and the Council adopted Directive 2008/06/EC, which amended the initial Postal Directive (97/67/EC) as amended by Directive 2002/39/EC. According to the Directive, member states must have abolished any remaining reserved areas by the end of 2010, with the possibility for 11 member states to postpone full market opening by two more years at most.

Table 1. Legislative and regulatory timetable for market opening process

1992	Green Paper on the development of the single market for postal services (COM/91/476).
1994	Council Resolution of 7 February 1994 on the development of Community postal services (COM/93/247).
1997	1 st Postal Directive (97/67/EC).
1998	Notice from the Commission on the application of the competition rules the postal sector and on the assessment of certain State measures relating to postal services (98/C39/02).
1999	1 st reduction of the "reserved area".
2002	2 nd Postal Directive (2002/39/EC).

	1 st Commission Report to the European Parliament and the Council on the application of the Postal Directive (COM/2002/632)
2003	2 nd reduction of the “reserved area”.
2004	2 nd Commission Report to the European Parliament and the Council on the application of the Postal Directive (COM/2005/102).
2006	3 rd reduction of the “reserved area”.
2006	Commission Prospective study on the impact on universal service of the full accomplishment of the postal internal market in 2009.
2006	3 rd Commission Report to the European Parliament and the Council on the application of the Postal Directive.
2006	Proposal of the 3 rd Postal Directive (COM/2006/594 final). This proposal is accompanied by the Commission’s prospective study in the impact of full market opening (COM/2006/596 final), an Impact assessment and the third Report on the Application of the postal Directive (COM/2006/595 final).
2008	3 rd Postal Directive (2008/06/EC).
2008	4 th Commission Report to the European Parliament and the Council on the application of the Postal Directive.
2010	Full market opening for 16 Member States, which represent 95% of the internal postal market. Commission decision establishing the <i>European Regulators Group for Postal Services</i> , ERGP (2010/C 217/07).
2012	Full market opening for remaining Member States that may use the possibility of transitional period.

Source: [8]

[9] described the evolution of price regulation in the three Postal Directives as follows: Article 12 of the First Postal Directive (97/67/EC) stated that prices must be affordable, geared to costs, transparent and non-discriminatory. It also proposed a uniform tariff throughout the national territory, although agreements with individual customers are possible. Article 1 of the Second Postal Directive (2002/39/EC) clarified the scope of price regulation, specifying that these prices: “shall take into account avoided costs with the standard services covering the complete range of features offered for the clearance, transport, sorting and delivery of individual postal items.” Such pricing linked to avoided costs bound two market segments (single-item and bulk), which had different demand characteristics (such as price elasticity), and therefore limited the ability for postal operators to compete on a level playing field (see [10]). The Third Postal Directive loosened the avoided cost constraints on pricing; only the preamble now refers to this principle. Nevertheless, postal operators’ price setting in all EU countries is restricted to at least USO products, and is likely to remain this way in the foreseeable future.

1.2. Postal Policy in the US

The history of postal services in the US began in 1775 (see [11]). In that year, Benjamin Franklin was named the first American Postmaster General in the Post Office Department. The Post first extended the mail system geographically, adding mail routes and post offices to communities, keeping pace with the westward-travelling frontier. In the 18th century, Congress introduced free home delivery of mail. In 1913, affordable parcel delivery was introduced. To enable the Post to serve all Americans, no matter how remote, and finance operations from its own revenue without external subsidy, it was given a monopoly over the conveyance of letter mail by federal law. Prior to 1971, the government provided postal services through its US Post Office Department, an agency that received heavy subsidies from Congress. The Postal Reorganization Act of 1970 transformed the Post Office Department into the United States Postal Service (USPS), which had increased authority over its own operations. USPS is now an independent agency of the executive branch, and is designed to be financially self-sufficient, relying on the sale of its products and services for revenue. USPS is required by law to cover its own costs, but can borrow from the US Treasury. Its basic function is still to provide postal services to bind the Nation together through the personal, educational, literary, and business correspondence of the people. USPS is therefore mandated by Congress to provide the public with universal service, which includes uniform prices, access to services, and nationwide delivery six days per week.

In 2002, USPS published a transformation plan, which identified ways in which it could improve its service and control costs. Between 2003 and 2012, the volume of first-class mail fell by more than 20 percent, following decades of growth (see [12]). In December 2006, Congress passed the far-reaching Postal Accountability and Enhancement Act (PAEA). This significantly changed how USPS operates and conducts business. In part, the Act provided new flexibility, particularly in competitive pricing for shipping services, enabling USPS to respond to dynamic market conditions and changing customer needs for packages.

Today, USPS still has a statutory monopoly on (a) the delivery of ordinary letter mail, including addressed advertising mail (express services provided at premium rates are exempt from the monopoly); (b) delivery to residential mailboxes; (c) delivery to post-office boxes; and (d) household mailboxes. USPS does not have a monopoly on the delivery of periodicals, but the monopoly on mail also gives it a de facto monopoly for the delivery of periodicals. As a federal organization, USPS benefits from numerous other privileges, and is exempt from vehicle licensing requirements, sales tax and local property tax.

Under the PAEA, USPS is required to make USD 103.7 billion in payments by 2016 to a fund that will pay for future health benefits of retirees for the next 75 years. Together with a continuing decrease in mail, this has caused financial trouble for USPS, resulting in a loss amounting to USD 15.9 billion in 2012 (see [13]). USPS aims at gaining more freedom by being allowed to reduce the frequency of delivery from six to five days per

week; providing non-postal services such as check-cashing, warehousing and logistics; and using public Internet access as alternative ways to raise revenues.

1.3. Different Regulatory Models for Competition

The difference between postal-policy objectives in the US and the EU is mirrored in their different models for competition. In order to accomplish the single market for postal services, the EU has introduced competition by lowering the weight threshold of the reserved area stepwise. Hence, competition can evolve in all parts of the value chain, from the collection to the delivery of parcel and letter mail.

In the US, the monopoly over delivery of letter mail remains intact. The delivery portion of the USPS network can thus be considered an essential facility by law. USPS allows access to its network at intermediary points, down to local delivery units, for mail that is prepared in accordance with postal regulations. Mailers and other private intermediaries that take advantage of this access to the network by performing upstream activities, such as sorting and transportation, are said to engage in worksharing. Worksharing entails downstream access without the competitor being able to bypass the USPS delivery process. Lower rates for workshared mail were introduced in 1976, with the offering of a small discount for pre-sorted first-class mail (see [14]). Since then, worksharing opportunities have expanded considerably. They now encompass virtually all classes of mail (including ordinary letter mail) and all types of activities upstream of delivery. Both retail prices and worksharing discounts are regulated. The Postal Regulatory Commission reviews USPS's prices before they become effective. Worksharing discounts are essentially set equal to the per-unit avoided cost; that is, according to the Efficient Component Pricing Rule (see [15], [16]). Competition has been introduced into the postal market in the US via incentives extended to mailers to perform activities upstream of delivery, rather than stimulating competition in the conveyance of targeted products in selected geographic locales – as has occurred in European countries (see Section 2).

In the UK, before 2011, Royal Mail was required by the national regulatory authority Postcomm to provide heavily regulated third-party access to its domestic downstream operations, thereby combining the EU model of end-to-end competition with regulated access, as in the US. While Postcomm saw the resulting growth of access traffic as a great success, Royal Mail's complaint was that it made a loss from delivery access mail (see [17]). This shows that the worksharing system allows the exploitation of economies of scale and scope in delivery. However, it also invites competition and challenges the incumbent's ability to fulfil their USO.

2. Recent Developments and Current State of Competition in the Postal Sector

Addressed mail volumes are generally shrinking in all industrialized countries as a result of increased competition from electronic means of communication. According to [4], between 2007 and 2011 the European letter post sector declined in terms of revenues and volume: between 2007 and 2010 the volume declined on average by 4.3 percent per year, while the revenue dropped by 5.2 percent per year. Between 2010 and 2011 the decline slowed to 3.3 percent in terms of volume, and 1.4 percent in terms of revenue. [4] estimated that mail volumes will continue to decline. Parcel volumes are growing due to e-commerce, which is the most important growth area for postal operators and consolidators: According to [18], between 2009 and 2011 the European market for courier, express and parcel services grew by 4 percent in revenues and by 6 percent in volume.

Therefore, competition in the postal sector has two faces: (a) Direct competition between postal operators offering conveyance services for physical parcel and letter mail; and (b) indirect competition of mail with electronic means of communication in the communications market. Both kinds of competition are influenced by the USP's state as an incumbent and a (formerly) state-owned company. Hence, the state of corporatization and privatization of postal operators is also of importance.

2.1. Direct Competition

The current state of competition is very specific to the various postal services considered. Looking at the situation of incumbent postal operators in Germany, Hungary, Iceland, Luxembourg, the Netherlands, Portugal, Slovenia and Slovakia, [1] observed that they continued to hold strong positions in correspondence and direct mail segments in 2009. This is not surprising, given that these markets have been fully opened only recently (by 2010 for the majority of EU member states, with a further two years allowed for 11 member states, among them Hungary, Luxembourg and Slovakia).

The situation is different in the publications markets, where the competitors' position is already established: the market for periodicals (newspapers and magazines) is generally more competitive than for correspondence and direct mail, although incumbents continue to hold an advantage in the form of their territorial coverage. The most competitive markets relate to the delivery of unaddressed mail and parcels, in both of which incumbents

have less than 50 percent of the volume, see Figure 3. Historically, these are the market segments in which competition has been allowed for the longest period of time.

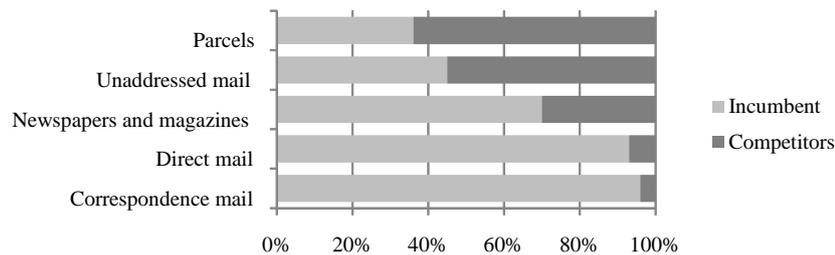


Figure 3. Market shares of incumbents and competitors, 2009 (included countries: DE, HU, IS, LU, NL, PT, SI, SK)
Source: [1]

Bypass and access are the two generic forms of competitive entry in the postal sector. With bypass, each postal organization operates its own delivery network. Typically, this entails partial area coverage serving only the most densely populated areas. Hence, the entire value chain is under competition end-to-end. Access gives competing operators the choice to deliver on their own, or to (partly) use the incumbent’s delivery network. In the latter case, only upstream processes are competitive, while delivery remains monopolistic.

Sweden is a prominent example of postal end-to-end competition (bypassing the incumbent’s delivery operations). There, the market for mail has been fully opened to competition since 1993. CityMail entered the market as a direct competitor to Sweden Post (Posten). It chose a business model that was highly selective in the following aspects: (a) a small product range (albeit in the largest market segment of pre-sorted bulk mail); (b) a low delivery frequency; and (c) a geographic focus on the most densely populated areas. CityMail’s business plan focused on the largest bulk mailers who were able to presort mail to the carrier-route level, thereby offering their services at a lower price than those of Posten. By delivering to recipients only twice per week, CityMail avoided much of the fixed cost associated with Posten’s five-day delivery. By initially serving only Stockholm, Sweden’s most densely populated city, CityMail further reduced its fixed delivery cost relative to the nationwide delivery of Posten (see Section 4 for a discussion of the economics of delivery). CityMail has continuously increased the scope of its operations, with expansions into the metropolitan and rural areas around Stockholm, followed by the cities of Malmö and Gothenburg in 1996, and the metropolitan and rural areas surrounding those two cities in 2000. Later on, CityMail further extended its geographical coverage by almost 60 percent, but still avoided delivering in sparsely populated areas of the country. At the beginning of 2000, CityMail moved from delivering twice per week to each address, to delivering every third business day. This change resulted in an important reduction in its fixed cost of delivery (see [19], [20]). In 2009, CityMail delivered only 11 percent of all addressed mail, although its market share in selected market segments is higher. The share of other entrants was negligible. CityMail’s case shows that successful market entry is possible even when there are strong economies of scale. The key to success is a highly selective business model that aims only to penetrate the most attractive market segments. Direct competitive pressure forced Posten to differentiate its prices and increase its productivity, for example by reorganizing its network of postal outlets and franchising its counters (see [21]).

The UK is a good example of access competition in the mail segment. [22] reviewed the recent developments in the UK postal economy: under the access regime, competitors have been given mandated access to Royal Mail’s delivery since 2004; however, they have the option to set up their own delivery network and cream-skim against Royal Mail’s uniform tariff by only delivering to the most attractive regions themselves. The prices charged to competitors for Royal Mail to deliver their letters are a crucial part of the access regime. Rebates for access products amounted to up to 33 percent of the end-to-end price (see [23]). In 2007, private operators collected 6 percent of the total mail volume; however, they delivered only 0.2 percent. Access has grown as a proportion of total mail volumes, although growth has slowed in recent years. Access grew from just under 44 percent of the market by volume in 2011 to just over 47 percent in 2012 (see [24]). For several years, Royal Mail was forced to subsidize its competitors because access prices did not cover their fully allocated costs. [25] argued that the overall burden of regulations on Royal Mail should be reduced by: (a) focusing regulation on sustaining the universal postal service; (b) ensuring that inappropriate competition does not undermine the universal postal service and the ability to finance it; (c) introducing a new access regime that will ensure the right balance between competition and the financial sustainability of the universal postal service; and (d) focusing regulation where there is a monopoly, and removing it from the competitive parts of the market. On October 1, 2011, Ofcom officially took over regulation of the UK’s postal services from the previous regulator Postcomm.

In its decision on the new regulatory framework, Ofcom converted the very detailed license system into a model with general authorizations, abolished a major part of price regulation in the retail and wholesale segments, and abolished direct regulation of access prices and the fixed margin for access operators, thereby granting more freedom to Royal Mail in its operations [26]. On October 15, 2013, Royal Mail became a quoted company with shares traded on the London Stock Exchange.

In the US, with its worksharing system, only USPS’s express mail and package delivery services are subject to end-to-end competition, which comes primarily from FedEx and the United Parcel Service. USPS’s monopoly prevents other companies from delivering first-class and standard mail, with an exception for urgent mail. Furthermore, private companies are not allowed to place their deliveries in mail boxes. [27] argued that giving downstream access to the network, coupled with economic incentives, increases the contestability of the market for upstream postal services. This results from strong economies of scale and scope in delivery, potentially prohibiting entry for end-to-end services. With access to the incumbent’s delivery, market entry is facilitated since only upstream processes (which exhibit weaker economies of scale and scope) have to be operated by the entrants. Experience in the US clearly confirms this: approximately 70 percent of all mail is now workshared to some degree. In Europe, large volumes are workshared (mostly presorted), even though competing postal operators and consolidators are allowed to deliver their items themselves. This is not attractive in all regions due to economies of scale and scope in delivery.

The issue of funding the USO in a fully liberalized postal sector has attracted much attention, not only from postal operators, but also in the economic literature (see, e.g., [28], [29]). It has been argued that the scope of the USO needs to be reduced to avoid (a) a “graveyard-spiral” in which the USP cannot survive a cream-skimming strategy by new competitors; or (b) subsidies and compensation funds (which may introduce further distortions in the market) to counteract the effects of competitive entry. Theoretical considerations have shown that full liberalization puts the financing of USO at severe risk (see, e.g., [30]). However, recent experience suggests that entrants in liberalized postal markets have a hard time competing directly with incumbent USPs due to economies of scale and scope, especially in delivery. Additionally, the decline in physical mail volume by indirect competition makes market entry by new competitors rather unattractive, as fewer firms will be profitable in the future. In contrast, the increasing availability of electronic means of communication may increase the competitive pressure on incumbent postal operators, and has proven to be much more dangerous for the financing of the USO.

2.2. Electronic Substitution (Indirect Competition)

In most developed countries, addressed mail volumes grew robustly during the 20th century and about in parallel with GDP, but began to fall in the first years of the new millennium [31]. There seems to be no foreseeable end to this trend, and the decrease will strongly affect the development of postal markets in the future. The volume of letters sent via USPS has declined from a peak of 213 billion in 2006 to around 158 billion in 2012. Figure 4 shows the actual volume of addressed mail from 1997 to 2012 in Switzerland (black line), and the hypothetical volume (grey line), which would have resulted from an increase in parallel to GDP as it did before the 1990s. Hence, Swiss Post faces increasing competition from correspondence sent via a variety of electronic alternatives. While Swiss Post still has a statutory monopoly over addressed physical mail up to 50 grams, new technologies are allowing senders to bypass the organization in all of its lines of business.

Demand studies for letter mail items have traditionally shown low price elasticities and around unit elasticities with respect to economic activity (see, e.g., [32], [33]). The recent decline in mail volumes has raised the issue of whether these demand elasticities have changed. Regarding price elasticities, some evidence from France and the UK suggests that their (absolute) values have increased a little. Therefore, the increased availability of electronic substitutes allows demand to react more sensitively to price changes. Regarding economic activity, [34] suggested that the elasticity remains close to unity. However, the trend may no longer follow the economy, but rather become negative because the effect of economic growth is superimposed by the negative impact of electronic substitution.

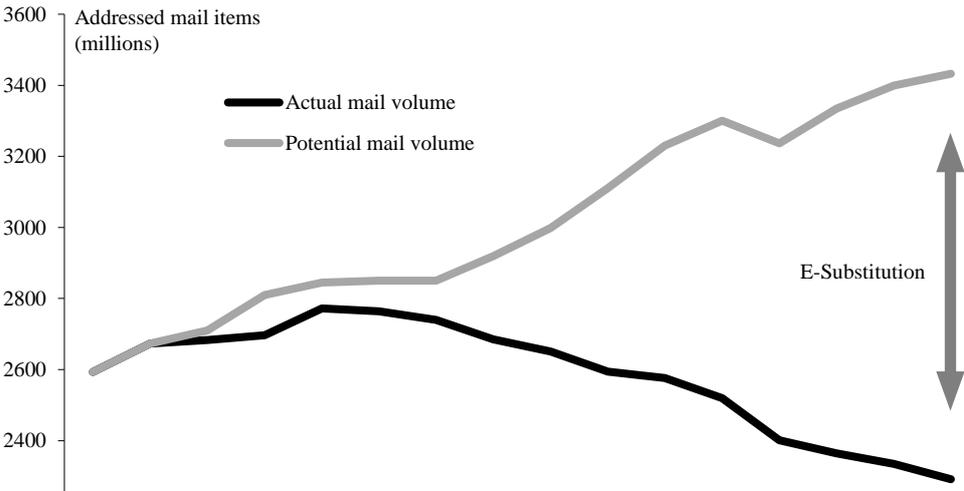


Figure 4. Time-series of mail volume in Switzerland
Source: [35], [36]

Increased indirect competition from electronic substitutes may indicate that the definition of relevant markets applied by regulation and competition law may change. However, [37] argued that the observed decline in volume is not on its own a basis for deregulation. They showed that a product that reduces the demand for the firm's services does not necessarily mean that, despite the displacement of demand, the firm no longer has significant market power. In terms of market definition, the original product and the displacing product need not be in the same market. [38] argued that the increasing substitutability of letters by electronic means of communication implies that they both should be considered to belong to the same market. This issue is important in the context of several competition cases (mainly in the direct-mail and unaddressed-items segments), which refer to predatory pricing and rebate issues. For example, in 2009, the Danish Competition Council concluded that there was still a separate market for direct mail products that did not include other (electronic) forms of advertisement (see [39]). It remains to be seen whether this market definition will be upheld in the course of the ongoing substitution process.

2.3. Corporatization and Privatization

With the impact of direct and indirect competition, postal operators need to become profit-oriented and able to respond to market conditions and customer needs. This recognition has led to a transformation of postal operators in many countries. Some have restructured their operations to become commercialized private enterprises with a corporate structure. According to [1], almost all incumbent postal operators in the EU are now limited liability companies or joint stock companies. However, governments often continue to hold a controlling stake in the operators, with the exception of Germany, Malta and the Netherlands. [40] argued that private governance is likely to provide better guidance to invest in the network and new services, compared to public governance, since it provides appropriate incentives for the valuation of capital. However, in most countries, the state still controls 100 percent of the incumbent operator's stock. State ownership is mainly motivated by the incumbent also being the USP. Owning the USP (or having a high stake in it) also allows states to influence the provision of basic postal services that are considered to be of general economic interest, in addition to a USO mandate. This additional channel may be an efficient element in the institutional setting for the governance of universal postal services (see [41]). In an empirical study, [42] found that privatization in fact has a negative effect on the quality of universal service provision (density of the postal network). However, it is formal privatization that causes the decrease in universal service, and not the change of ownership. Reducing office density in turn implies that services are offered less frequently, and that services are less available to all citizens.

3. Universal Service Obligations

3.1. The Scope of Universal Service Obligations

For the EU member states, the Postal Directive defines the minimum characteristics of the USO as: (a) one collection from appropriate access points every working day; (b) one delivery to all addresses every working day; (c) including postal items and packages up to 20 kilograms; plus (d) a service for registered items and insured items. The concrete specification and implementation is country-specific. Typical dimensions of postal USO are displayed in Table 2. **Fehler! Verweisquelle konnte nicht gefunden werden.**

Table 2. Dimensions of postal USO

Product range	A list of products and services covered by the USO.
Coverage/accessibility	Requirements on where, when and how these products are made available. Usually, services must be offered nationwide (“ubiquitous service”) and be easily accessible.
Prices	Restrictions in pricing. For example, prices must be cost-oriented, affordable, uniform, or provide incentives for efficient service provision.
Quality	Minimum standards that must be met for USO products.
Infrastructure	Often, there are obligations to operate certain infrastructures, such as a certain number of post offices.

Some of these dimensions address the needs of the senders or receivers. Others are directly linked to the postal network itself. Figure 5 presents the typical elements of postal USO, their relation to the postal value chain and their target customer group (sender or recipient). This structure provides an understanding of the economic rationale for current USO

Relevant sender-specific features are motivated by the opportunity cost for sender S to reach postal services at the point of collection C (such as post office, agency, online). The features include the availability of services and opening hours of C, and the availability of online solutions and ability of S to use them. In turn, the recipient-specific features are motivated by the opportunity cost of recipient R to reach postal services at the point of delivery D (for example mail box, post office, post office box). They include the availability of services, as well as the frequency and time of delivery at a specified delivery location D (a post office, centralized mailbox or doorstep), and the availability of online solutions and the ability of R to use them. The third dimension is characterized by the services provided by the platform to link the sender and recipient sides (C – D). Of relevance are the basic products offered (letters, parcels), including their specific features (such as end-to-end speed, reliability, price, value-added services, etc.).

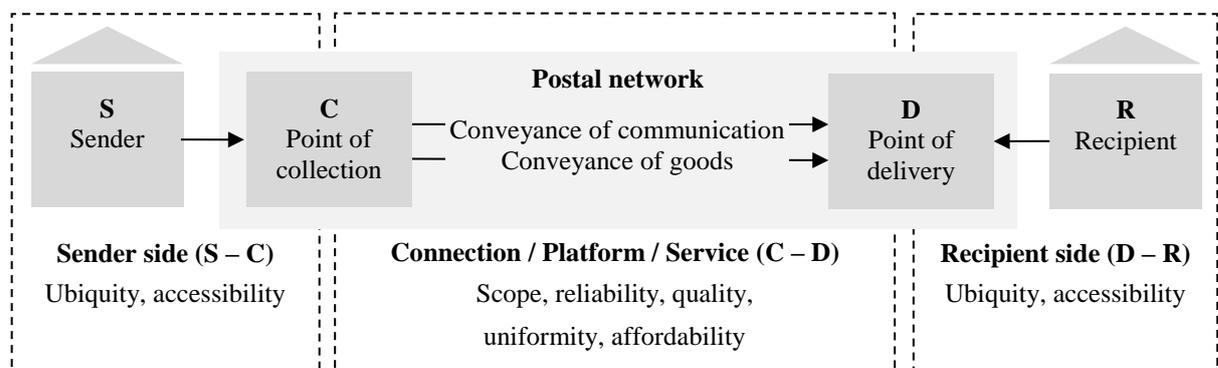


Figure 5. Elements of postal USO

Source: [43]

Besides redistributive concerns, postal USO are often justified by network effects due to the two-sidedness of postal conveyance (see, e.g., [16], [44]). Postal operators are platforms (intermediaries) that link senders and recipients, as well as sellers/businesses and buyers/clients. The larger the recipient base, the greater the business opportunities on the sender side (that is, for firms that benefit from relying on postal products instead of alternative media), and the more attractive are letters as a medium/platform. Conversely, recipients benefit from a large number of firms using postal services, and may be more likely to empty their mailbox if they can expect many letters from a large sender base. Thus, USO may serve as a device to internalize these externalities. [45] discussed the implication of the two-sidedness of the postal market on pricing, and highlighted the importance of subsidizing the recipient side of the market. Their results support the “sender-pays principle” of today’s postal markets, including free home delivery as ensured by today’s USO. [44] showed via a two-sided market model that a profit-maximizing postal operator will choose a suboptimal quality of delivery (in terms of coverage or

reduced frequency of service), thereby leading to a decrease in demand. [44] concluded that this problem might be solved, or at least mitigated, through USO, and thereby provide a basis for quality and coverage constraints.

3.2. The Financing of Universal Service Obligations

Calculating the net cost of postal USO is currently an important topic in many countries. If the net cost of USO represents an unfair financial burden, EU member countries need to implement financing mechanisms to compensate the USP without granting state aid, which is generally prohibited by Article 107 of the Treaty on the Functioning of the European Union. This requires an understanding of the effect of the USO financing mechanism on competition. The net cost of USO according to profitability cost is the difference in the USP's profit with and without this obligation (see [46], [47]). Annex I of the Third Postal Directive defines the net cost as follows: "The net cost of universal service obligations is any cost related to and necessary for the operation of the universal service provision. The net cost of universal service obligations is to be calculated, as the difference between the net cost for a designated universal service provider of operating with the universal service obligations and the same postal service provider operating without the universal service obligations." The European Committee for Postal Regulation [48] has published guidelines for calculating the net cost of USO in the EU. In addition, the European Regulators Group for Postal Services [49] issued a report on net-cost calculation and the evaluation of a reference scenario.

A number of national regulatory authorities have already commissioned reports on the net cost of the postal USO. See, for example, [50], [51], [52], [53] for recent applications of the profitability-cost approach in the postal sector. According to [1], the net cost has so far been estimated in 10 countries. The net cost of the USO is generally modest. The exceptions are Spain, Iceland, Slovenia and Malta (see Table 3).

Table 3. Cost of USO in selected countries

Country	Net cost	Year	Source
Denmark	DKK 148 million; 1.5% of operating expenditures	2005	[49]
Hungary	EUR 23.7 million; 3.8% of revenue	n/a	[1]
Norway	NOK 497 million; revenue n/a	2010	[53]
Iceland	ISK 600 million; 10% of revenue	n/a	[1]
Malta	EUR 12.8 million; 69% of revenue	2008	[1]
Slovenia	EUR 96.5 million; 39% of revenue	2009	[1]
Spain	EUR 242 million; 12% of revenue	n/a	[1]
UK	GBP 271 million; 4% of operating expenditures	2006/2007	[51]
US	USD 7.63 billion; 10% of revenue	2007	[54]

Articles 7 and 9 of the Third Postal Directive guide the member states when implementing mechanisms to share the net cost of USO. In particular, the provisions aim to prevent member states from raising new barriers to entry resulting from competitors having to contribute to financing USO. See [56], [57] on the competitive effects of USO and various financing mechanisms, and [58] for an overview of financing instruments. The main funding mechanisms compliant with the Third Postal Directive are external financing, and a compensation fund to which postal operators are obliged to contribute. These contributions might be waived if an operator provides universal services. If the burden of the USO can be absorbed by price adjustments, there may be no need for further compensation. In the EU, many member states have provisions for one or several financing mechanisms for the USO. The following countries may use external financing (direct compensation from the state) if the USO turns out to be an unfair burden: Estonia, Latvia, Slovenia, Norway and Sweden (see [1]). However, even if member states have financing provisions, universal services are often provided without compensation (such as in Sweden). Eleven countries (Austria, Belgium, Cyprus, France, Germany, Estonia, Italy, Netherlands, Portugal, Slovenia and Spain) have provisions for a compensation fund, but so far no country has activated this fund. By a decision of the European Court of Justice (case C-357/07), universal postal services provided by the incumbent operator are exempt from value added taxes (VAT) on the grounds that they are the "public postal service." Other postal service providers have to charge VAT at the standard rate. This asymmetry distorts competition and may be viewed as an indirect means of compensating USP for their burden [59].

If USO represent a burden on the USP, the USP should be compensated appropriately in order to guarantee a level playing-field for competition. Increasing direct and indirect competition also increases the net cost of inefficient services and infrastructures due to the USO: for example, the obligation of delivering mail items daily may not be economically binding if mail volumes are high. However, in the presence of considerable fixed costs in delivery, a decrease in volume results in daily delivery becoming increasingly unattractive, and hence in an increasing net cost of USO. Instead of increasing compensation, postal policy has started adapting USO to better align it with consumers' needs, and thereby alleviate its burden.

3.3. Future-oriented Universal Service Obligations

Postal USO are often focused on physical mail and parcels, as well as being input-oriented (see, for example, the elements of postal USO as provided in the Third Postal Directive). Rather than defining the consumer's needs that should be covered by a service, they prescribe the exact way in which these needs must be satisfied (see [60]). New digital means of communication resulting in platform competition between physical and digital modes are likely to change the economic rationale of postal USO. For example, registered mail might diminish in value to society when digital alternatives such as digital signatures have (a) been implemented in the legal framework, and (b) succeeded in the market. While some USO elements illustrated in Figure 5 may be of decreasing value, others may become more valuable to society. Examples are the delivery of parcels because of online shopping. Similarly, new combinations of physical postal services with new digital means will allow for selected adjustments of the postal USO.

Potential candidates are, among others, the electronic collection of letters (which are later printed out and delivered physically) or electronic/hybrid delivery of letters (scanning, instantaneous electronic delivery, weekly physical delivery of scanned mail). Hence, given the increasing convergence of postal and telecommunications markets, and the availability of viable substitutes for postal services, there may be an opportunity to redefine USO in order to reduce their burden on operators and the economy as a whole.

There are two possible paths by which to reform USO: first, the use of electronic technology instead of traditional postal means to fulfill consumers' needs in the traditional USO; and second, a change in the definition of the USO in order to account for alternative means available to consumers.

The main needs of recipients concerning postal services are physical and timely delivery. The technology used by the postal operator is of little interest. Reverse hybrid mail services (that is, the option to have physical mail delivered electronically) improve physical delivery by serving as the secure electronic complement to the physical mailbox. As a prerequisite for such a service, broadband and mobile penetration rates have to reach a critical mass. In the long term, universal services may become a technologically neutral multichannel concept that is built on the original idea of the USO to safeguard the public's access to a defined range of basic services. With the concept of coordinated USO for communications and transport, no matter how quickly technologies change, the right to a minimum level of service quality is of high importance for the economic development of a society. [61] proposed to adapt the USO to new consumer needs, and confine it to residential and small-business customers. This idea was taken up by [43] and refined by proposing a future-oriented USO, as outlined in **Fehler! Verweisquelle konnte nicht gefunden werden.** Table 4. The proposal follows the second path by changing the definition of the postal USO due to new electronic means of communication. The USP (the platform) is required to offer at least one letter and parcel service (basic services) that ensure compliance with a set of obligations that are related to speed, reliability, affordability and uniformity (basic requirements). Those products that are necessary to achieve compliance with the USO requirements are then, implicitly, the regulated ones. Products that differ in at least one dimension are not regulated. For example, a product with non-uniform pricing or very slow delivery time would not be regulated. Price uniformity is inefficient in the context of heterogeneous delivery cost; however, uniformity constraints for basic services are maintained for redistributive reasons (see [44]).

On the sender side, the regulation of collection is limited to the nationwide availability (ubiquity) and accessibility of the basic services. Therefore, no particular form of collection is presumed (such as post offices) to enable customer-friendly adaptations of the postal network over time, including online solutions where feasible.

On the recipient side, the standard mode of delivery remains home delivery for all letters and parcels (that is, it is not limited to basic services, as opposed to the sender side). Whether the associated cost for the USP is appropriate, and reductions in the frequency of home delivery are allowed, depends on the electronic alternatives provided. Such electronic alternatives may be offered by the postal operator to save on physical delivery costs, or due to telecommunications USO. Daily delivery is not required explicitly; however, it may be required implicitly where it is necessary or optimal to meet the requirements that the postal platform must satisfy for basic services. For example, daily delivery would be necessary where these requirements include demanding speed requirements such as J+1 (next day delivery), while J+3 may make it optimal to deliver every second or third day only.

Table 4. Outline of a future-oriented postal USO

Economic Rationale	Traditional postal USO (EU-stylized)	Outline of a future-oriented postal USO
<i>Sender</i>		
Ubiquity	Every citizen	Every citizen
Accessibility	Letter drop and post office nearby, collection at least five days per week.	Customer-oriented collection facilities, accessible at least every working day
<i>Recipient</i>		
Ubiquity	Delivery to almost every citizen. Delivery at least	Delivery of basic services to almost every citizen.

	five or six days per week.	
Accessibility	Mail box or PO box for x percent of population.	Physical and/or electronic mail box. Physical mode to home premises as standard, but with increased flexibility if electronic alternatives are available.
Connection/platform		
Scope	Letters, parcels, registered mail.	Basic service for letters and parcels, option for proof of receipt.
Quality	Speed: J+1 to J+3. Fulfillment: X percent of items.	Standard speed requirement (J+X delivery) for basic services where Sundays and/or Saturdays are not counted in the measurement, less demanding speed requirement where combined with instantaneous electronic delivery.
Reliability	Postal secrecy.	Postal secrecy, integrity requirements for electronic services.
Affordability	Prices must be affordable.	Limited to basic services.
Uniformity	Prices might be uniform for single peace items.	Limited to basic services.

Source: [43]

In such a framework, the scope of postal USO is directly linked to the availability of alternative means of conveying goods and information. The first role of regulators will then be to approve changes in the accessibility of collection and delivery, subject to a set of clearly defined criteria. The second role will be to control whether there are products offered by the incumbent that lead to compliance with the rather generic basic requirements, as described above. Correspondingly, postal-service providers will be flexible enough to adapt their product range over time to the changing needs of consumers, as long as the basic requirements are still met. For example, electronic communications being universally available may make it unnecessary to have daily physical delivery.

Adjustments to USO are already under way to account for the availability of electronic substitutes, changes in customer behavior and decreasing mail volumes. In 2013, the Dutch government has started working on switching USO from a six-day delivery week to a five-day delivery week, in order to allow Post NL, the USP, to cut operating costs (see [62]). This would leave only Germany, the UK, Denmark and France among the EU countries with national requirements for addressed mail to be delivered six days per week. Similarly, in 2013 New Zealand Post proposed an update to the Deed of Understanding it has with the government regarding standard letter delivery and postal outlet services (see [63]). Instead of having the obligation to deliver on six days per week to more than 95 percent of delivery points, it proposed an adjustment to the obligation to not less than three days per week delivery to 99.88 percent of delivery points within New Zealand Post's network, and not less than one day per week delivery to the remaining 0.12 percent of delivery points in the network. Currently, New Zealand Post has to maintain a network of at least 880 post centers and postal outlets offering postal services. A minimum of 240 of the total outlets have to offer postal and agency services (such as bill payment services). New Zealand's proposal suggested the following changes: a network of service points throughout New Zealand from which consumers can purchase postal services, containing no fewer than 880 service points in total and no fewer than 240 where consumers can, in addition to purchasing postal services, use bill payment services. The network may be made up of a combination of outlets owned by New Zealand Post, services hosted in other businesses, and electronic self-service kiosks. This reform would grant New Zealand Post increased flexibility in providing its services, while keeping the customers' service-experience level high.

4. Network Access Regulation

As in other network industries, exclusive control over network elements or facilities that are essential for competition is an important issue in the regulation of the postal sector. Essential facilities (monopolistic bottlenecks) constitute assets of incumbent USPs that can be characterized as stable barriers to entry for potential competitors. While essential facilities are easily identifiable in other network industries, it is not clear a priori in the postal sector which infrastructure elements merit or necessitate regulation (see [64]).

The main elements of the postal value chain to which access may be granted are collection, sorting, transport and delivery. Table 5 summarizes the economic characteristics of the postal value chain, and explores whether they are essential facilities in the postal sector. Note that Table 5 focuses on the main processes operated by the incumbent postal operator themselves. Specific functions of co-ordination between operators (such as the postcode system) may necessitate separate regulation.

Table 5. Characterization of postal value chain

	Sub-additive cost	Irreversible cost	Bypass opportunities	Essential facility
Collection	No. There are economies of	No. Post offices can be reused	Yes. There are franchise	No

(post-office network)	scale, however there are also economies of scope, for example with other retail outlets.	for other purposes at little cost.	models with grocery stores, gas stations, etc.	
Sorting	No. Complexity of sorting increases the number of items and receiving addresses.	No. Buildings are reusable; sorting machines may constitute a large irreversible cost, but are tradable.	Yes. Electronic sorting, sorting by hand, own sorting machines.	No
Transport	No. Capacity increases with volume of postal items.	No. Trucks and cars can be reused for the transport of other goods.	Yes. Own vehicles.	No
Delivery	Yes. There are strong economies of scale, density and scope in home delivery. Due to daily delivery, the USP is not able to exploit them completely.	No. Delivery cost is mainly personnel cost incurred daily.	Yes. Email, own delivery, for example once or twice per week in selected areas. There are alternative delivery organizations, such as for unaddressed mail, parcel services, newspaper delivery.	No

Source: Based on [65]

Table 5 shows that there are no essential facilities in the postal value chain. Collection uses infrastructures other than the post-office network (such as mail boxes in the street, collections at businesses, or businesses delivering to terminals) that are even more contestable. In addition, sales are increasingly moving into grocery stores, gas stations and kiosks; for example, Sweden has not had post offices at all since 2002. Hence, collection can hardly be considered to rely on bottleneck resources. [64] and others have argued that there are no irreversible costs in any of the elements of the postal value chain that would constitute a monopolistic bottleneck in those components that exhibit the property of a natural monopoly (that is, a subadditive cost function): even though delivery is a natural monopoly, bypass is economically possible (that is, less costly than use of the existing delivery network) if it is regionally selective, less frequent, or at a different time (early morning) than the delivery under USO. An example of success is CityMail in Sweden (see Section 2.1). Delivery exhibits a high portion of fixed cost, which is due to fixed routes. Routes are constant as long as each delivery point receives at least one postal item per delivery. Only when volumes are lower, and when a change in volume implies a change in the number of households that have to be served, can routes be redesigned. This is usually the case in the delivery of courier, express and parcel services. The literature extensively covers the meaning of the economic characteristics of postal access regulation. From an economic-network point of view, there is no major economic obstacle to effective competition in a fully liberalized postal sector. In addition, market entry has been observed in the postal sector despite the presence of significant economies of scale and scope (see [66]) and without regulated access. Generally, markets in the postal sector seem to be not only contestable, but readily contested if USPs do not offer attractive access conditions. As discussed above, access to the incumbent's delivery process facilitates entry for new competitors. Hence, access regulation is a potential means by which to speed up the development of competition in the context of market liberalization.

In the EU, Article 12 indent 5 of the Third Postal Directive requires member states to ensure that the principles of transparency and non-discrimination with regard to both the tariffs and the associated conditions are in place whenever USPs apply special tariffs, for example for services for businesses, bulk mailers or consolidators of mail from different users. Non-discriminatory access promotes effective competition in the upstream market, whereas discriminatory access conditions are considered to potentially allow the market-dominant delivery-service provider to project its market dominance into the upstream market as well. According to a survey by [4], in the majority of EU member states, transparent and non-discriminatory access is required by law. Point of entry for access mail (which is then delivered by the incumbent) is usually the inward and outward sorting center. Figure 6 shows the access levels in Belgium, Germany, France, and the UK. For a discussion of access regulation in the UK see Section 2.1, and [17].

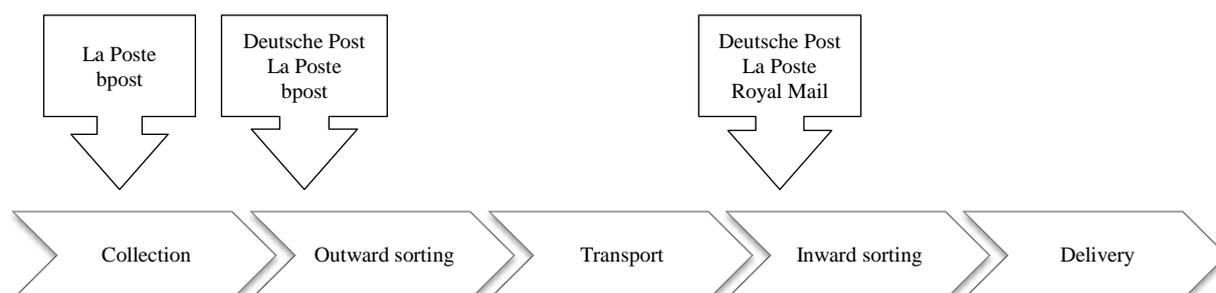


Figure 6. Access levels in Belgium (bpost), France (La Poste), Germany (Deutsche Post) and the UK (Royal Mail)

Source: [4]

Technical functions of co-ordination, such as the postcode system, post-office boxes and redirection services are independent of the network characteristics of the postal sector. Standardization and access to these may be regulated separately (see [67]). Article 11a of the Third Postal Directive obliges member states to ensure that transparent, non-discriminatory access conditions are available to such elements of postal infrastructures or services provided within the scope of the universal service, whenever this is necessary to protect the interests of users or to promote effective competition.

The contestability of postal markets not only depends on their core economic characteristics, but also on other regulations. [56] argued that USO serve as a commitment device, and may prevent entry into certain regions or market segments. Thereby, USO reduce the sector's contestability. In the case of the worksharing system in the US, entry is prohibited in delivery. Hence, delivery is a legal monopolistic bottleneck (and thus entirely uncontestable). This legal barrier to entry necessitates a regulation of access conditions as a consequent secondary regulation to ensure fair competition in the upstream parts of the postal value chain. [16] discussed the economics of efficient worksharing discounts in this setting.

[68] argued that maintaining delivery volumes should be a central strategic priority for postal operators in the face of declining demand. For upstream services (collection, sorting and transport), new operators may have lower costs, and therefore lower prices than incumbents due to access to lower-priced labor, less restrictive work rules and the absence of strong economies of scale and scope. In addition, they are more likely to be innovative in designing products to compete with electronic substitutes. Hence, USPs have a strong incentive to offer access products to consolidators and worksharing organizations on their own terms, and regulation may impede the spontaneous development of a competitive wholesale market.

5. Conclusion

The postal sector is one of the oldest network industries, and is of high economic importance in many countries. This paper highlighted the main aspects of the competitive and regulatory state of the sector. The paper also discussed the different models for postal competition in the EU and the US, as well as their history, together with the implications of regulation and the financing of USO. While markets for parcels and unaddressed mail have long been open to competition, the segment for addressed mail has been liberalized in Europe only recently. The US still retains a monopoly on the delivery of addressed letter mail. However, through access to USPS's delivery network, it enjoys vivid competition in mail preparation, processing and transport.

With the clear distinction between competitive upstream processes and monopolistic delivery, the US closely aligns postal regulations with the different economic characteristics of the various elements of the value chain. In the EU, the goal of a closely integrated single market called for full market opening. In both models, USO ensure that the entire population has access to affordable, high-quality postal services. With delivery being a legal monopoly in the US, regulated access is necessary to ensure a level playing field for upstream competition. In the fully liberalized postal sector of the EU, the economic rationale for access regulation is less clear. There is entry in the parcel and letter-mail markets even without access to the incumbent's delivery. The joint use of one delivery process by several operators may fully exploit economies of scale and scope; however, it also accelerates entry and fosters direct competition.

The postal monopoly used to be the main source of funding for USO. With increasing direct and indirect competition, the need for alternative funding sources has increased the interest of regulators and the public in knowing the costs and benefits of these obligations in order to assess potential changes. In addition, new means of electronic communication and consumer needs call the economic rationale and the traditional scope of postal USO into question (see [69]). Indeed, several states have already started adjusting their postal USO (or are considering it) to account for the availability of electronic substitutes, changes in customer behavior and decreasing mail volumes.

Postal and telecommunications services are increasingly converging by serving fundamentally similar consumer needs of communication over large distances. Some services that traditionally relied on postal USO are now provided spontaneously by market forces in the postal or telecommunications sectors. The paper has outlined a road for the future of postal USO and regulation to strengthen the commercial viability of postal services in a competitive age, while safeguarding their relevant characteristics for the economy. It was argued that alternative means of conveying goods and information should be taken into account in defining and complying with postal USO.

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