

Developing Universal Services in Low Volume Countries – an Economic Perspective

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Developing Universal Postal Services in Latin America – an Economic Perspective¹

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1. Introduction

Universal service obligations (USO) and the concern of its financing in a liberalized market have been broadly discussed during the process of postal market opening in Europe. Thereby one implicitly agreed that virtually (1) all member states started with a postal market where universal services were *provided already* (and financed)², and (2) that liberalization affects the financing situation of universal services *in one way or the other*. Supporters of the postal liberalization like the European Commission claimed that only a full market opening would enable the former postal monopolists to face the new electronic age due to increased pressure for innovation and efficiency. On the other hand, critics of postal liberalization pointed at the economics of the postal market. Significant economies of scale in delivery would increase per piece costs in a liberalized market with parallel and competing networks³. Moreover, concerns on the sustainability of uniform pricing were raised in light of cherry picking in low cost areas. Indeed, most economists questioned the viability of uniform pricing requirements in fully liberalized postal markets. Examples include Crew and Kleindorfer (2006), Panzar (2001), DeDonder (2001), Dietl et al. (2005), or Jaag (2007). Calzada (2008) shows that entrants can, by limiting their coverage to low cost areas, induce a higher incumbent price and thereby extract higher profits.

Other regions in the world have a *different starting point*. In Latin America, postal markets are often deregulated, and it is unclear whether the postal services provided there can be considered as “universal”. For example, everyday free home delivery for everybody remains the exception. Hence, before assessing the question on *how* to finance universal services it is important to ask the question of *why* to finance universal services. Interestingly, there are only a few papers dealing with this second issue whereas the first issue was broadly discussed in recent years.

Taking a comparably low level of universal service in Latin America as a given, we discuss the economic importance of universal postal services in Section 2. We conclude that – despite emerging electronic substitutes to postal services – these services remain an important ingredient for any well functioning economy. We hence ask how to best achieve universal postal services in Latin America and develop key economic issues related to the USO in Section 3. We develop our conclusions on how best to develop universal services in Latin Americas in Section 4. We summarize our findings in Section 5.

¹ The views expressed are those of the authors and do not necessarily reflect the opinion of the institutions they are affiliated with.

² The objective was not the *achievement* of a universal service in Europe. Instead, one agreed on *safeguarding* universal service.

³ Cf. Farsi et al. 2006 for a computation of economies of scale, density and scope.

2. The value of Universal Services for the society

Before implementing USO policies in developing countries it is important to know whether the USO is desirable at all. Are universal postal services of value to the society, and do they deserve appearing on the political agenda from an economic point of view?

In most developed countries universal services consist of a number of different dimensions that affect both costs and consumer demand. Typical dimensions include:

- *Product Range*: A list of services covered by the USO;
- *Covered Area*: Distribution must be ubiquitous; a postal access point must be located within reasonable distance;
- *Frequency of Service*: Collection and delivery must usually take place every working day, at least five times per week;
- *Prices*: Prices must be affordable and uniform (at least for single piece items of private customers) for the products covered by the USO;
- *Quality*: A certain fraction of all mail and parcels (e.g. 97% in Switzerland) must be delivered next day (E+1) or three days after (E+3).
- *Infrastructure*: Often, there are obligations to operate certain infrastructures, such as self-operated post offices.

We will see in the next section that a reasonable combination of those six dimensions might be crucial for any economy.

2.1 The economic role of the Universal Service for a country

In essence, the above USO regulations aim at ensuring a service that enables everybody in the economy to reach everybody else (anybody connected as sender and recipient) within a reasonable timeframe (for example next day) on a reliable basis (one must know that the recipient indeed gets the letter) conveniently (no large effort to reach a post office or receive a letter) at affordable postage rates (postage should be considered as “cheap”).

With regards to the economic importance of such a service, we attribute two major functions to universal services; First, Universal postal services *enable* other parts of the economy by reducing transaction costs and overcoming distances between buyers and sellers. Second, in line with the progress of digital means for written communications and financial transactions, posts fill the increasing gap between the physical and digital world, hence they are “*bridges*” between the physical and the digital and take the role of a “transformer of last resort”.

We will develop these two essential economic functions in the following subsections.

2.1.1 Economic enabler

Many postal corporations are proud of their missions and explicitly highlight their economic importance. For example, Canada Post writes in its Annual Report 2007: “We are one of the largest employers in Canada as well as [...] *a substantial enabler of the Canadian economy.*” Similarly, Swiss Post’s corporate vision includes: “*We are the backbone of an efficient Switzerland.*” How come?

Making business involves (1) making your potential customer aware of your offer, (2) agreeing on a bargain, (3) delivering the promised deliverables, (4) billing, and (5) payment by the customer. For standing orders, (6) customers need an enforceable

way to quit subscriptions. The sequence of these steps is largely determined by the applied payment mechanism. We do not go into the details but highlight that in a large fraction of bargains, billing takes place after the goods or services are delivered. Universal services play a vital role in all six steps.

1. Advertising: *Letters* (direct mail) are an important means to advertise new products in a specified area or for selected customers satisfying certain criteria (“targeting”). In contrast to other media, direct mail remains the only means to physically reach *any customer*, no matter of where she may live or whether a TV is available, switched on at the right time on the right channel. In Switzerland, the postal channel historically was very popular for sending product samples, for example a tester of a new candy.
2. Closing a deal: A large fraction of (bargain) contracts are signed at home and sent to the contracting party by mail. Whether or not you close a long distance sale depends largely on the availability, reliability, quality and price of postal services (letters, parcels) and their support for the enforceability of a contract. More details see (3) to (5). Note the ubiquity of universal services increases the market as businesses can reach a larger number of potential customers.
3. Delivering: Long distance sales require a convenient, modestly priced and reliable parcels service to deliver the goods to the buyer. Sender must be absolutely sure that the goods arrived (undamaged) at the recipient’s chosen destination.
4. Billing: For subscriptions, but as well for long distance sales, a cheap standard mail service should be available that includes a sufficiently legal basis for dunning letters and so on. In case of delayed payments, additional added value services need to be available (e.g. registered mail, writs). Moreover, quality of service is an important aspect to enable credible respites. If the postman is perceived as a government official, this will further ameliorate the payment practices in the society.
5. Payment: Besides the need for a reliable threat of the seller to enforce the owing payments from the sellers (see (4)), a convenient low-cost payment means must be available for any customer (including customers who do not having a bank account). Here, post offices play an important role. Taking Switzerland as an example, anybody can pay any bill with cash for free. Hence, almost anybody living in Switzerland can pay any bill within 20 minutes⁴.
6. Cancellation: To quit a subscription, the contracting party often requires a letter signed by hand. Again, letters must be available which should go along with reasonable opportunity costs of sending a letter (postage and time to reach the postal network).

In more economics terms, postal services *reduce transaction costs* between buyers and sellers in various aspects, provide *network externalities*, and play an important role to *enforce contracts* (and hence property rights). For the latter, it is important to recognize the role of the postal system as an integrating part of the legal system to enforce contracts. Universal services ensure that anybody can reach anybody and collect outstanding debt in a low-cost way: Without a reliable standard mail service (to send invoices, reminders), registered mail and writs products (possibility to have a proof of

⁴ Regulations require Swiss Post to provide a Post Office for 90% of the population within 20 minutes by public transport or foot. Moreover, financial transactions are part of the universal service.

having informed the counter party), and cheap payment means for anybody (including people without a bank account) many trades would not take place.

This interplay between letters, parcels, and financial transactions seems crucial for any economy. In this regard one can explain why Switzerland chose to include *all three services* in its universal service obligation. That is, besides postal services, financial transactions are included in the USO, too⁵.

If the above interplay is important on a national level, the same will also hold true on a global scale. It appears straightforward that the Universal Postal Union (UPU), established in 1874, is one of the oldest international organizations. The UPU aims to connect national letters and parcels services of its 199 member countries and recognizes the importance of the USO. Recently, UPU started discussions to develop a worldwide financial payment system. Recall that Western Union focuses on international money transfers and collaborates very closely with local postal services – indicating that postal services and financial transactions have a close link (and exhibit economies of scope). Hence, the very existence of the UPU and its globally recognized efforts reflect again the economic importance of the USO – ideally a *universal triple play* of letters, parcels, and payments services.

If postal services enable economic activity, can economic activity be measured by postal volumes? Does economic activity (e.g. taking the GDP as proxy) influence postal volumes or is it the other way round? If the arguments above hold true, there will be a connection in both ways: Good postal services will foster economic activity, and higher economic activity will result in higher postal volumes. Not surprising most empirical studies on this matter show a strong, often close to 1:1 relationship between GDP and overall letter volumes. That is, 1% more economic GDP would increase postal volumes by about 1%, *ceteris paribus*. Trinkner and Grossman (2006) show that despite e-substitution, the relationship still holds true in Switzerland⁶.

2.1.2 Bridge between the physical and the digital – “transformer of last resort”

With regards to e-substitution it is crucial whether postal services will keep their (economic) importance in a digital age. There is an extensive literature on e-substitution and the future of mail. The interested reader is referred to a number of comprehensive studies commissioned by Pitney Bowes.

Despite the signs that letters will uphold their significance, postal administrations must go with time. Even if letters will last through time, the trend for communications means goes into the digital part of the world. Customers increasingly want freedom of choice of their preferred channel for communications. Hence, postal operators must offer competitive access to their channels. Postal operators have three options – and most modern administrations follow both paths simultaneously.

First, posts use new digital technologies to add value to their traditional products. Track and trace services or intelligent mail are examples.

Second, posts have introduced new digital products like electronic registered mail, electronic p.o. boxes, or e-banking, mobile and EBPP for payment services.

⁵ In addition to postal services and financial transactions, Swiss Post historically provided and still provides local rural public transport (“PostAuto”). Again, the service helps to reduce transaction costs and to overcome distances.

⁶ Note that the effect of e-substitution overlays other effects such as economic activity. Hence, postal volumes can well differ from GDP or other measures for economic activity. See Trinkner and Grossmann (2006) for a detailed treatment of measuring e-substitution.

Third, and crucially, posts fill the gap between the physical and digital world. Posts increasingly and successfully act as “transformers” between physical and digital media. Examples include E-commerce, hybrid mail, document services, electronic stamp, response management, mailroom services, scanning, in-payments, out-payments, and other. Services such as Amazon require home delivery and payment systems that would not be possible without posts. By offering these interfaces, posts support the digital world by serving as a “transformer of last resort”, similarly as national banks as “lender of last resort”. Consumers could, if they wanted, go into the physical again. Hence posts offer a “physical insurance” for the digital world and thereby support the development of digital alternatives.

In this light, universal postal services appear like a *bridge between the physical and digital world* – as long as posts find it profitable to offer this transformation function. We strongly believe that posts in turn will manage to convert this unique selling proposition into a profitable business.

2.2 The political importance of Universal Services

The postal USO faces great political attention. In industrialized countries, slight decreases in service levels provoke broad media coverage, political debates and heavy opposition from all sides. Possible explanations are the public good characteristic of postal services and hence again their economic importance, regional policy matters, the role of the USO for social cohesion⁷, the labor sensitivity of changes in the USO (postal administrations rank amongst the largest employers of their nations), and/or the importance of a high level of USO for the government.

With regards to the last point, postal services historically developed national address systems with post codes and street names and numbers. They virtually “gave” the people an address where they could be reached. Governments aiming to tax on an income base must be able to reach their residents, and democracies need to reach all citizens to conduct fair public voting. Universal postal services ensure it. Hence, postal services play a vital role for the functioning of a state⁸.

Last but not least, postal services are important in terms of national security. For example, in case of a disease or collapse of the internet or power supply, postal services will be the only remaining delivery infrastructure (disease) or communications means (internet collapse). Hence, a functioning postal network in place is a high priority issue.

We conclude that an efficient USO should be on the political agenda in any country – regardless of the stage of development of postal services.

3. Key issues to develop Universal Services

Having detected the economic importance of the USO we now discuss key issues that should be kept in mind when governments aim at developing universal postal services. We highlight and explain the importance of selected aspects such as ubiquity

⁷ We do not develop the issue of social cohesion further. For a discussion of the impact of postal services on national cohesion within a country see Cremer et al. (2001).

⁸ Moreover posts played their role in nationalization of countries. Postal services were amongst the first signs of new nations. In Switzerland, a federal state, postmen were the first daily carriers of the nation’s symbols. For more than hundred years, postmen were perceived as government officials and treated with a respect close to local policemen. This perception has changed in recent years with the upcoming liberalization process in Switzerland.

and quality of service, the legal status of mail, cost of service provision, pricing issues and the effect of competition. Our aim is to provide a better understanding of the economics of successful postal service provision. Based on these considerations we will present our conclusions for USO development strategies in Section 4.

3.1 Ubiquity

With every customer that is connected to the postal network, businesses have a larger market to reach (see Section 2 for details). Similarly, if postal services *reach all citizens*, letters are a convenient means for many government functions. In economic terms, postal services exhibit *positive network externalities* – the value of the postal network for one group of users (senders) increases with the number of users connected to the network (receivers). More specific, postal services are *two-sided markets*⁹. Other real world examples of two-sided markets include many internet applications, the credit card industry, radio or television broadcasting, peer-to-peer networks, computer operating systems, or telecommunication networks. Postal operators hence are to be considered as *platforms* that enable communication and transactions between two parties – senders/mailers on one side, and receivers/recipients on the other. Besides pricing, the two-sidedness of the postal market raises the issue of network effects. We can expect the value of a postal network to increase the more customers are connected to it.

We presume that the notion of *ubiquitous access and delivery*, sometimes also referred to accessibility, which lies at the core of the USO, is to be seen in this context and is a crucial element that a USO policy should ensure. Ubiquity ensures that the two-sidedness of the postal network is accounted for and will positively affect demand for postal services. Every address added to the postal network makes it more valuable, and ensuring that everybody is connected to the network does not require customers (businesses, governments) to develop alternative means to reach their clients/citizens. The importance of *free home delivery* is highlighted in a recent research by Felisberto et al. (2006). Their market research indicates that home delivery has an important and positive effect on mail demand: Up to 35% of recipients would not empty their mailbox anymore if Swiss Post would offer only a (free) P.O. box delivery instead of today's home delivery (free of charge). Hence, replacing home delivery by P.O. box delivery would cause a significant drop in mail volumes.

3.2 Quality

We subdivide quality of service into three dimensions, each of which adding important value to postal products: reliability, punctuality, and confidentiality.

Reliability: In reference to Section 2, many letters will only be sent if senders can be sure that a letter arrives at its destination, that the receiver will at least read the envelope. Otherwise, letters have no value. If 10% of letters in average did not reach their recipients, this would cause a significant drop in volumes as this would impede many applications of mail and lower the net present value of direct mail campaigns.

Punctuality: Similarly, a significant proportion of senders require their mail to reach recipients within 24 hours. For example, Swiss Post offers a next day product (E+1) as well as an E+3 service. Both services arrive within their time limits in over 97% on average¹⁰. Although the priority product is about 15% more costly, about half of single piece mail is sent by priority mail. Hence, next day delivery appears to be of

⁹ Cf. Jaag and Trinkner (2008a) for a formal definition and a comprehensive treatment of the two-sidedness of mail markets.

¹⁰ Swiss Post, Annual report 2007.

significant value to Swiss consumers. One can assume that many letters would not be sent if Swiss Post could not credibly guarantee the time limits or cease its priority service. Note that about a century ago, when Swiss Post used to deliver twice a day one could send a letter in the morning and be sure the recipient got it in the afternoon. The service was rationalized with upcoming telecommunication services.

Confidentiality: People do not want their neighbors to know which letters they receive, nor do people want their neighbors to know who sent the letter. Hence, trust in the mailmen is needed because he has considerable information about senders and receivers. Many posts hence require the “sanctity of the mail” of their employees. In addition, individual mailboxes are required. Note, that this does not allow for a sharing of P.O. boxes between various recipients as it is for example the case in many African countries (Anson 2008).

3.3 Legal status

Regulations influence mail usage in many respects. If, for example, genuine signatures are required for concluding certain types of contracts, letters will be used to overcome distances between the contracting parties. If physical reminders by mail are legally enforceable, letters will play an important role in enforcing contracts and payments. On the other side, “do not mail” campaigns and black lists to protect recipients from advertising will constrain the use of direct mail for advertizing and hence influence volumes negatively (at least in the short run). Most recently, debates on carbon footprint of mail could affect the use of letters in one way or the other.

3.4 Cost

Many potential applications of letters and parcels exhibit a comparably low willingness to pay. Moreover, any economy has an interest to reduce transaction costs for making business. Hence, postal services should be “affordable”.

Unit costs of postal services are influenced by many factors, and regulations play an important role. Most economists have detected *substantial economies of scale, density and scope* in the postal value chain. See Farsi et al. (2006) for the case of letters and parcels in the delivery process.

Economies of scale are present if larger network coverage decreases unit costs. Economies of scale are substantial within the postal network. Hence, larger postal networks not only have positive demand effects but also decrease the costs per piece, *ceteris paribus*. Note that rural regions might still exhibit significantly higher per piece costs than densely populated areas.

Economies of density are present if more items per delivery point reduce unit costs. These are highly present in letters delivery. One road can be served most efficiently by one mail carrier. Two or more mail carries will lead to comparably higher unit costs. Hence, competition might have a negative side effect as emerging parallel delivery networks will increase unit costs.

Economies of scope are present if the joint production of two products yields lower unit costs than producing the products independent from each other. Economies of scope are substantial in post offices between parcels, letters, financial payments/services, and community services. See Buser et al. (2008) for a more detailed treatment. Similarly, economies of scope are present in the delivery of letters and parcels. Hence, it is crucial whether postal services are allowed to develop themselves into other market segments. Regulations that do not allow for providing financial services will lead to higher unit costs.

Unit costs will further be influenced by *taxes*. Value added tax (VAT) will increase the cost per letter, similarly profit taxes (or profit appropriation by owners) will have a negative impact. Most postal services remain exempt from VAT. In Europe this holds true even in a fully opened market and a resulting unlevel playing field (private competitors must charge VAT¹¹).

Finally, the level of “*input regulations*” will affect postal units costs in an important way. Input regulations are rules that prescribe a certain conduct rather than a service that has to be delivered. Examples include labor cost regulations, regional policy regulations such as providing a minimum number of sorting centers, or obligations to operate collection points by use of self-run post offices.

3.5 Pricing

In terms of pricing, the two-sidedness of postal markets matters again (and makes things complicated). There are two basic questions to be answered: (1) *who pays* for postal services, the sender, the recipient, or both? (2) A second question relates to the *overall price level* which is crucial to finance universal postal services.

(1) In two-sided markets, total demand is affected by a change in the pricing structure. In the 19th century, Rowland Hill changed the pricing structure in England in a radical way. Before the reform, senders as well as receivers were charged postage. Afterwards, either senders *or* recipients had to pay the whole postage price, whereby postage for senders was only half of the postage for recipients. The history on the reform reveals that demand virtually exploded after the change in the price structure, essentially being a reform towards the principle ‘sender pays it all’. Similarly, recent research by Jaag and Trinkner (2008a) indicates that in liberalized (two-sided) postal markets, receivers will likely be subsidized by senders. Moreover their results support regulations that avoid that large recipients are able to exert their bargaining power towards postal operators (postal monopoly or special regulations in case of liberalization). Otherwise, this will result in higher overall postage costs and hence lower volumes.

(2) Empirical time-series and cross-section studies unanimously report negative price elasticities of letters. That is, higher prices lead to lower overall mail volumes. As developed in Section 2, important categories of mail will only find users if postage is “cheap”. In Switzerland, the country with the highest rate of mail per capita worldwide¹², a letter up to 100 grams costs about a fifth of a cup of coffee in a restaurant. In real terms, postage remains about the same as it was a century ago. Remarkably, mail per capita was only a fraction of what it is today which somehow questions the standard results on economies of scale and density in postal delivery (cf. Section 4.3 for a more detailed treatment).

3.6 Direct and indirect competition

Direct Competition: As pointed out, full liberalization of the postal market (“end-to-end” or “side-by-side” competition) leads to parallel networks which in turn might negatively affect overall costs. On the other side, competition might spur efficiency and

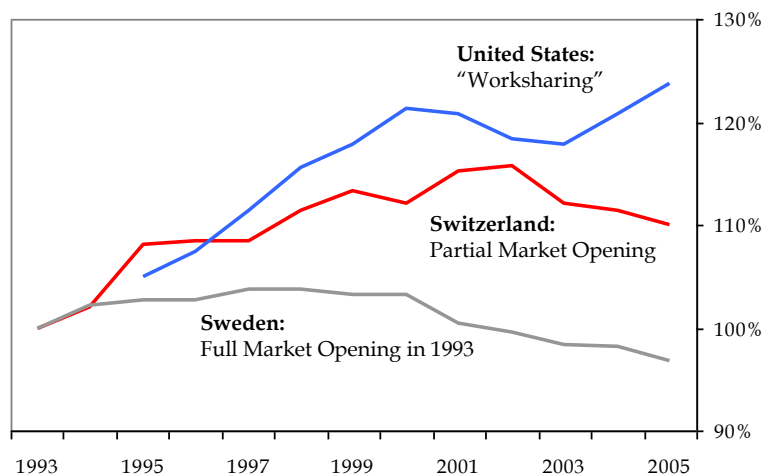
¹¹ Directive 2006/112/EC allows European member states to exclude USPs from VAT. Most European countries have exerted this right. Hence, postal competitors must charge the full VAT rate on their products (about 20%) whereas incumbent operators remain VAT exempt (but cannot deduct VAT on USO inputs). Taking the two effects together this results in a distortion of competition in favor of USPs (and USO products).

¹² PWC (2006).

innovation in the sector. For the effects of regulation on innovation see Dietl et al. (2007, 2008a, 2008b).

We do not explore the details further but provide an indicative comparison of the performance of three standard regulations of the postal market: Sweden with its completely liberalized market, Switzerland with its residual monopoly, and the US with “worksharing”, a rigid letters monopoly allowing for upstream competition. For details on the regulations and their welfare effects see Dietl et al. (2005) which find that worksharing performs best as it realizes the benefits of competition without sacrificing economies of scale and density in delivery. Figure 1 shows the development of overall mail volumes in Sweden, Switzerland, and the US and provides some¹³ empirical support for the findings of Dietl et al. (2005).

Figure 1: Development of overall mail volumes in selected high-volume countries



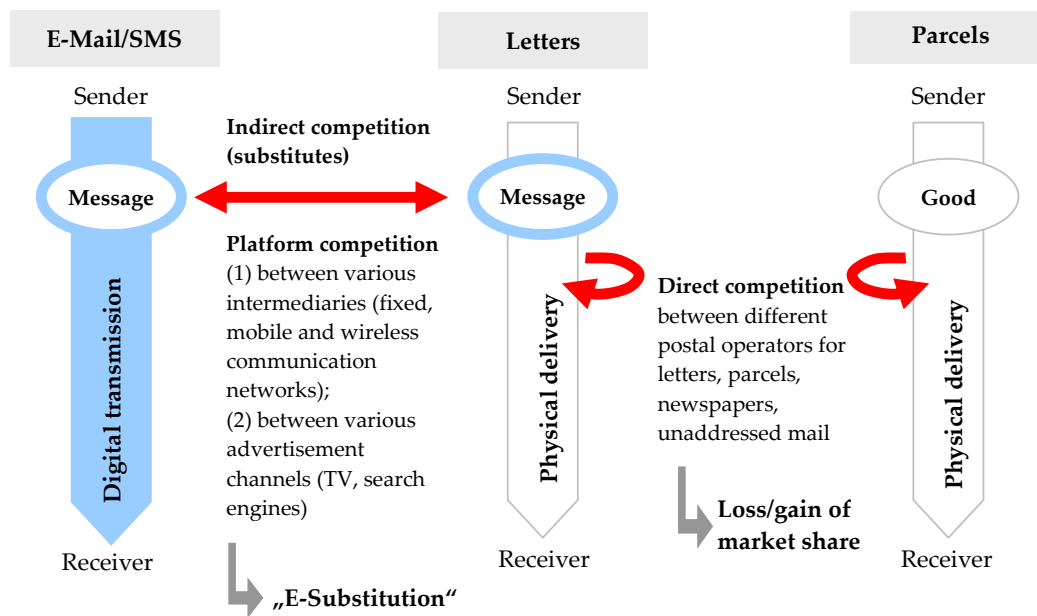
Source: Trinkner (2008a)

We conclude that the effect of competition on market volumes remain debatable and refer to the large body of literature relating to the challenges to finance the USO in fully liberalized markets. Recall that in free markets, prices must relate to costs, and that universal service policies try to achieve something else (prices = uniform).

Indirect Competition: Postal services face increasing indirect competition through digital means of written communication. The overall volume in single-piece mail is shrinking in most highly developed countries including Switzerland despite growing written communication markets. Market share losses are considered as “e-substitution”. This rapidly evolving “e-competition” threatens the postal services in a similar way as end-to-end competition does and thus raises competitive pressure with a respective need for efficiency and innovation that is independent of liberalization. Thereby, it is crucial that the industry finds ways to successfully position itself in this broader market for communications and advertisement where prices for digital deliveries are marginal. Should postal operators primarily focus on market positioning against each other by climbing down the quality ladder, the industry might find itself in a difficult situation. Note that this might provide for an explanation of Figure 1 with United States Postal Service (USPS) being the PPO advertising mail as a medium most professionally.

¹³ Note that the different development could have been caused by other country specific factors too. We leave a detailed research for future research.

Figure 2: E-Substitution as a loss of market share in platform competition



Source: Trinkner (2008a)

4. How to develop the Universal Service

In Section 2 we concluded that the USO is a desirable policy to achieve for any economy. In Section 3 we discussed key issues for developing universal services. On the one hand, low and affordable rates for postal services seem an important ingredient of the USO. On the other hand, high letters volumes seem to be crucial to achieve low unit costs and therefore affordable rates. Hence the crucial question appears to be: “How to develop the USO if starting from a low volume situation as it is the case in most countries of Latin America?” It appears like a *chicken and egg problem* (which by the way is an inherent problem of two-sided markets in general and postal markets in particular¹⁴).

4.1 Starting Point in Latin America

Table 1 provides an overview over important differences between Latin American countries and industrialized countries. It turns out that the starting point of Latin American countries is significantly different. These countries seem to have much lower mail volumes, and their public postal operators (PPO) do not reach the whole population. Moreover, PPOs have comparably low market shares – with one important exception. According to Anson et al. (2006), Brazil’s PPO reaches 95% market share due to its monopoly rights. Despite the monopoly, Brazil has by far the highest number of domestic items per capita. Note that in Latin America, postal markets are usually deregulated; hence Brazil is an exception in this regard.

Table 1: Differences between Latin America and Industrialized Countries

¹⁴ See e.g. Dietl et al. 2008c.

	Latin America	Industrialized Countries
Number of people served by each postal worker	3056	343
Access to postal services		
via home delivery	81%	95%
via P.O. boxes	13%	5%
without access	6%	0%
Average area covered by a permanent post office	590 km ²	196km ²
Number of Items posted per capita in 2006		
letter post	18.9/10*	403.7
parcels	0.283	6.375
Market share of public postal operator (except for Brazil)	35%*	>70%*
Pricing structure	Sender and receiver may pay*	Sender pays only*
Affordability	May not be considered as affordable*	"Affordable" prices*

Source: UPU, Berne, November 2007, *Anson (2006)

4.2 Drivers of Mail Demand in Latin American Countries

How can we explain overall mail volumes of Latin American countries? Anson et al. (2006) provide some econometrical evidence in their comparative study on Latin American countries. Interestingly and in contrast to industrialized countries, economic activity (GDP) and prices provide no explanatory power. They find a negative impact of P.O. box use and a positive impact of post office density. Hence, the more people need to collect their mail at the post office and the longer they have to travel to the next post office, the less mail is sent/received. Mail volumes are higher if the market is more concentrated (monopolistic).

Their results are in line with our considerations in Section 2 and 3. The non-significance of *GDP* might indicate that most PPOs in Latin America fail to play their role as economic enablers. Less than 19 letters per inhabitant per year on average (cf. Table 1) underline this interpretation. Recall that one utility subscription (power, telephone) generates quickly more than 12 letters if those are reliable and economic – otherwise utilities chose prepaid payment means. According to Anson et al. (2006), a large fraction of Latin American PPOs delivers even less than one letter on average to its residents. Apparently, in these countries trade takes place without postal services and hence GDP and mail volumes are not correlated. The two-sidedness of postal markets helps to explain Anson's results on the negative impact on *P.O. boxes* as well as the detected insignificance of *postage price*. In Latin America, receivers often do not get their home delivery and/or P.O. box for free. In Chile, letter carriers bargain individual delivery prices with their recipients (and do not hand the collected money on to the postal services). This caused the collapse or non-existence of the direct mail market; recipients are not ready to pay their mail carrier money for receiving advertisement. Hence, as the authors point out, their data may not reflect the real pricing system correctly. The positive effect of *market concentration* on mail volumes contradicts the common view that competition brings growth to the market. Brazil's monopoly outperforms its Latin neighbor countries clearly. The results are consistent with Figure 1 and support the "classical" economic view that markets exhibiting the property of a natural monopoly should be served by a *regulated, public monopolist*. In this view, the legal *monopoly* is justified by the exploitation of economies of scale, density and scope,

and its *regulation* is necessary to avoid the extraction of monopoly rents. *Public ownership* is preferred to private ownership because public ownership assures that potential monopoly rents will remain in the public domain (in case regulators fail to prevent the abuse of monopoly power). See Section 4.5 for a discussion of public procuring of USO.

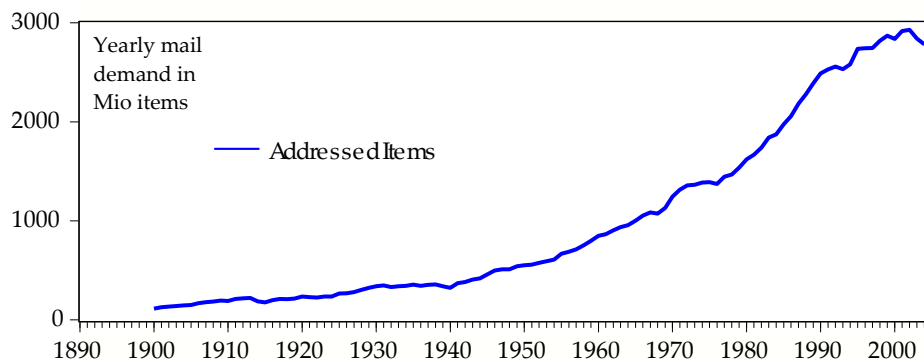
We summarize as follows. To achieve greater mail volumes it will be crucial to 1) implement the right pricing structure (with affordable rates), 2) to ensure a viable regulation of the postal market, and 3) to properly define the USO so as to achieve the necessary quality and reach within a country.

The question remains if affordable rates are possible when starting from a low-volume situation.

4.3 Low volumes - high costs? Strategies for low volume countries

Figure 3 shows the overall letter volume development in Switzerland since 1900. Between 1900 and 2000 letter volumes grew steadily. Since 2000, mail volumes are steadily decreasing between 1% and 2% a year.

Figure 3: Historical development of addressed mail items in Switzerland



Source: Trinkner (2008a)

Interestingly, despite the large increase of mail volumes (also with respect to mail volumes per capita), Swiss Post's *real prices remained about constant* between 1900 and today. Hence it is not a priori clear whether low postal volumes necessarily need to come along with higher prices.

Table 2 provides some evidence why low volumes might not necessarily imply high per piece costs. It indicates that cost characteristics in low volume countries of Latin America differ to industrialized countries. Most importantly, input price factors such as wages differ substantially (and play an important role in the postal cost function).

Table 2: Some cost differences between Latin America and Industrialized Countries

Less developed low volume country	Developed high volume country
Characteristics	
Low labor costs, higher cost of capital	High labor costs, lower cost of capital
Responses and results	
low automation, decentralized sorting	high automation and use of information technologies to compensate high labor costs
Economies of scope between <ul style="list-style-type: none"> • mail and parcels • collection, sorting and delivery (manual processing in postal offices which have delivery and sorting functions) 	Economies of scope between <ul style="list-style-type: none"> • mail and parcels • (None: Clear separation of processes)
(None, but low labor costs)	Economies of density in delivery

Moreover, liberalized postal markets in industrialized countries indicate that letters can be a profitable business already with low volumes. For example, Sandd and Selekt Mail operate profitably in the Netherlands with only a fraction of volumes of incumbent post TNT.

We conclude that low volume countries *should be able to achieve viable postal operations with affordable unit costs of mail, provided that (USO) regulations are well tailored to the country specific conditions*. In particular, regulations should allow for tailor-made business models to exploit low labor costs and economies of scope between collection, sorting and delivery. In the following, we discuss the need of USO regulations in more detail.

4.4 The role of USO regulations

Against the background of the previous considerations and experiences in particular in Latin America, Table 2 summarizes the pros and cons of USO regulations compared to a complete deregulation of the postal market (“laissez-faire competition”).

Table 3: Laissez-Fair Competition vs. USO Regulation

	(Laissez-Faire)Competition	USO Regulation
Advantages	<ul style="list-style-type: none"> • free markets 	<ul style="list-style-type: none"> • Internalization of Network Externalities (positive cross-side and same-side effects) • Reduction of Transaction Costs • Enforce minimal standards related to quality and price • Redistribution <ul style="list-style-type: none"> • from urban to rural areas • from senders (businesses) to receivers (households) • Government <ul style="list-style-type: none"> • regional integration and social cohesion • democracy • enforcement of contracts and property rights
Disadvantages	<ul style="list-style-type: none"> • Focus on (high-volume, low-cost) urban areas • No home delivery to rural areas • Receiver pays principle in rural areas 	<ul style="list-style-type: none"> • Funding of USO
Result	Incomplete postal network	Financing Issues

We consider USO to be the political response and solution of the two-sided market issues of the postal market. USO ensures that both sides, senders and receivers, benefit from the postal network. Thereby, positive cross-side and same-side network effects are internalized. Uniform price principles throughout a country will further reduce transaction costs and enable redistribution between dense and rural regions as well as between large and small customers. However, uniform prices are less of a concern than equal and affordable terms throughout the country¹⁵.

However, USO regulations have a cost and raise the issue of funding.

4.5 Funding the USO

Important elements of the USO remain in a natural conflict with competition¹⁶. This raises the question of how to enforce and fund the USO.

A first and straightforward solution is to *restrict competition*, i.e. to introduce monopoly rights for certain types of postal services. Monopoly rights resolve problems associated with the sustainability of uniform pricing. Further, the pricing mechanism can be used to finance further obligations as cost covering prices can be enforced by the universal service provider more easily (price level is not given by the market). Finally, monopoly rights will secure the highest exploitation of economies of scale, density and scope. Monopoly rights have been worldwide the traditional and most widespread means to finance the USO.

A second means to finance the USO refers to liberalized postal markets. Here, one has to *compensate universal service providers* for their USO duties¹⁷. Possibilities include government subsidies or compensation funds raised by the various market participants. Thereby, the USO can be delegated by competitive tendering or other means. The 2008 postal directive 2008/6/EC is the leading example for compensation schemes in a liberalized environment (see Trinkner 2008b for a discussion of the directive).

Figure 4 illustrates the various possibilities of procuring the USO from a government's perspective. In a first step, a package of *duties* and *rights* has to be specified. The definition of the package is crucial and will determine the market structure and the financial burden imposed by the requested services/obligations. For example, the inclusion of exclusive rights such as postal monopolies reduces the need for external resources and excludes inefficient duplication of networks. In a second step, the package has to be self-provided by the state or delegated to the market. In case of market delegation, the state can choose in a third stage over various options including beauty contests among potential producers or tendering. Please note that the division into the various steps is somewhat artificial. As the steps are interdependent, decision makers should take into account all stages simultaneously (i.e. ideally resolve the issue by backwards integration for various packages of duties and rights).

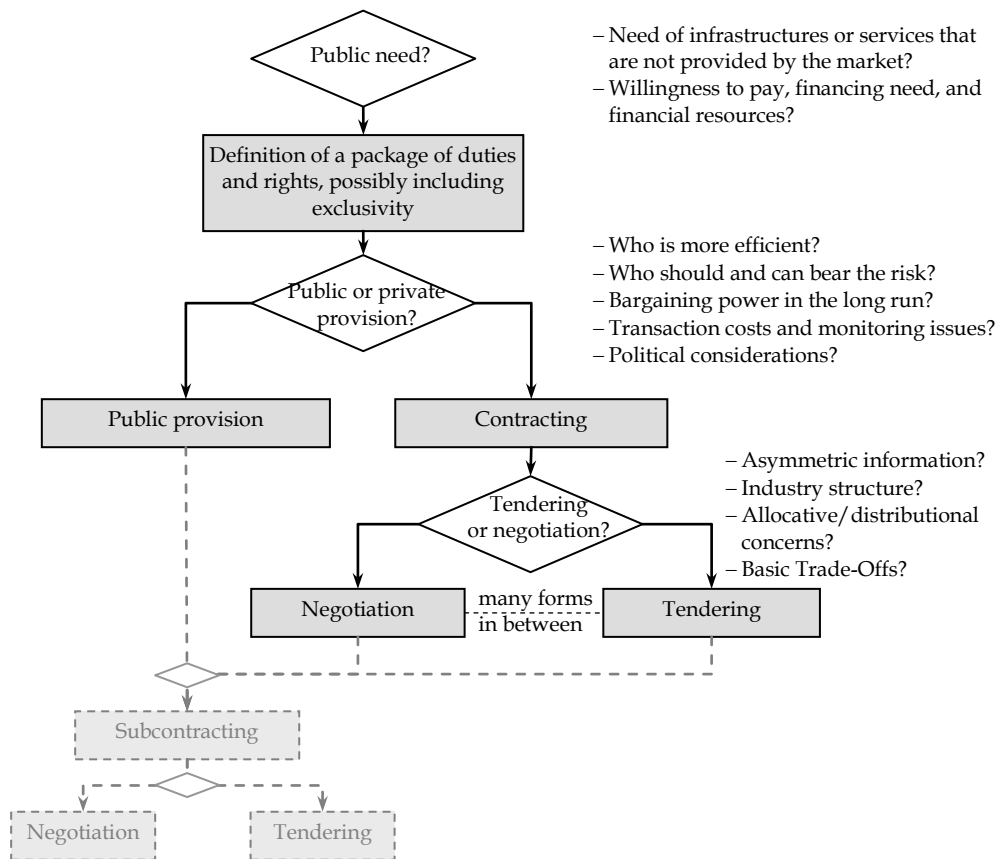
For a detailed treatment of the three stages including a discussion of the various criteria see Jaag and Trinkner (2008b).

¹⁵ For example, Swiss Post made a distinction between local and national tariffs up to 1970.

¹⁶ Cf. Trinkner (2008b) for a discussion.

¹⁷ Note that a fair compensation requires a correct estimation of the costs of the USO. See Jaag et al. (2009) for a treatment of the subject.

Figure 4: Decision-Tree for public procurement



Source: Jaag and Trinkner (2008b)

Elaborating these criteria in detail as well as considering the country specific conditions with regards to key issues as described in Section 3 will allow for country specific recommendations. Doing so, however, would be beyond the scope of this paper.

5. Summary

Universal postal services are an important enabler for economic growth, social welfare and national security. Unlike most industrialized especially European countries, who enjoy a well-functioning USO which may be threatened by the current process of market liberalization, most Latin American countries are still in the process of developing universal postal services. In most Latin American countries, significant parts of the population are not fully connected to the postal network, pricing structures appear inadequate and, as a result, mail volumes per capita are relatively low. In this situation, the postal network cannot completely fulfill its role as economic enabler.

On the other hand, most Latin American countries benefit from low labor cost. As a result, the degree of automation in sorting is considerably lower than in most industrialized countries in which labor costs are high in relation to the cost of capital. In addition, postal operators in Latin American countries can realize economies of scope between the various stages of the postal value chain (collection, sorting, and delivery).

These differences call for different USO regulations in Latin America on the one side and Europe on the other hand. In Europe, postal networks are fully developed. Universal service is the rule, not the exception. USO regulation is primarily

concentrated on assuring the financial viability of the USO operator under market liberalization. Most Latin American countries face the opposite problem: their postal networks are incomplete and need a different approach to assure USO. We have highlighted these differences as well as the potential economic consequences. Moreover, we have provided a framework to develop USO policies in less developed countries. Adapting this framework to the country specific conditions will allow for country specific recommendations. Doing so, however, would be beyond the scope of this paper.

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