



School of Public Policy

Study on Universal Postal Service and the Postal Monopoly

Appendix F

Section 1

**Efforts to Calculate the Cost of the USO and the
Value of the Postal Monopoly in the US and Abroad**

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1 Executive Summary

Introduction

The concepts for calculating a ‘cost of universal service obligations’ were first developed in the 1990s. Since 2000, empirical efforts were made in a number of countries to quantify the cost of these obligations in the postal sector. We have carried out research on such efforts and have identified nine approaches: eight in European countries, and one in Australia. This chapter summarizes the results of our analysis of these approaches.

With regards to the purpose of the net cost calculations, a first result is that only very few methodologies were applied to justify actual compensation paid to postal operators. The results of USO cost calculations were generally used to inform liberalization policies, by assessing whether substantial costs results (or would result) from universal service obligations in a liberalized market.

With regard to the methodologies adopted to calculate USO costs, we found two broadly distinct categories of approaches:

The first category, which includes most of the earlier efforts, is based on product accounts. The approaches of this category assess the profitability of individual postal products, or aggregate product groups, or ‘mail paths’ – combination of products, types of customers (e.g. business or residential), different areas where mail is posted or delivered, or other features. Most approaches of this category do not explicitly determine a ‘reference scenario’, i.e. they do not discuss explicitly how the postal operator would change service levels if the USO was withdrawn. In these approaches, the cost of the USO is calculated as the sum of deficits of loss-making products (or product groups or mail paths). An implicit assumption of these methodologies is that all products (or product groups or mail paths) that deliver negative results would be discontinued by the postal operator if there was no universal service obligation.

The second, more recent, category of approaches analyzes the cost of alternative service levels: It considers which elements of the USO the postal operator would alter, or discontinue, in the absence of a USO. Hence, a ‘reference scenario’ is specified in these approaches. Generally, the second category of approaches can be considered to conform

to the theoretical concept of the “profitability approach” which was developed (separately) by John Panzar and Helmuth Crémer.¹

In recent quantitative applications, there is a trend towards the second category. There appears to be wide consensus that the relevant approach towards measuring the cost of the USO is to compare the additional profits postal operators could achieve if there were no USOs imposed on these operators. The crucial element of all these approaches is the determination of levels of service the postal operators would provide if the USO were relaxed. Based on our review of international USO costing methodologies, we conclude that USO costs, if there are any, are most likely to be related to three areas. Absent a USO, postal operators may increase profits by

- (1) Reducing the frequency of delivery from five or six deliveries per week to less frequent services. Such service alterations appear most important in areas with high unit cost for delivery, e.g. in the most rural areas.
- (2) Reducing the number of postal offices, and substituting traditional postal offices for contracted agencies.
- (3) Removing non-commercial price schemes and ‘social prices.’ In particular, postal operators may stop delivering mail for the blind without a charge. (Regular postage might be introduced for services for the blind. Alternatively, the services could continue to be offered free in return for a government subsidy.)

Calculations in recent models did not find a relevant cost related to requirements to provide nationwide service at a uniform rate. (But note that many European postal operators are not barred from charging non-uniform rates to bulk mailers.)

As a separate task for this study, the authors searched for methodologies that calculate the “values of the postal monopoly.” Despite an extensive review of literature, and direct questions posed to many postal regulators worldwide, we are not aware of any serious

¹ See Crémer, H., Grimaud, A. und J.-J. Laffont (2000): “The Cost of Universal Service in the Postal Sector”. In: M.A. Crew und P.R. Kleindorfer (ed.): *Current Directions in Postal Reform*, Kluwer Academic Publishers, Boston, MA, S. 47-68; and J. Panzar (2001): “Funding universal service obligations: the costs of liberalization”. In: M.A. Crew und P.R. Kleindorfer (ed.): *Future Directions in Postal Reform*, Kluwer Academic Publishers, Boston, MA, S. 101-15.

effort made internationally to estimate the value of the postal monopoly.² However, the fact that postal operators around the world have been arguing strongly in favor of maintaining their monopolies suggests that there is a substantial value to this monopoly.³

The remainder of this section briefly summarizes the nine USO costing methodologies that were reviewed for this report.

Australia / Australia Post

In Australia, the postal legislation requires that Australia Post periodically publishes the cost of the “Community Service Obligation” (CSO). In Australian usage, the CSO is the part of the postal universal service obligation that would not be provided by commercial companies under the prevailing conditions. First, Australia Post considers revenues and avoided costs of ‘mail paths’. The methodology implicitly assumes that loss-making mail paths would be stopped in the absence of the USO. Second, Australia Post adds resulting losses of facilities (after hypothetically discontinuing loss-making mail paths) and, third, a percentage of overhead costs. In FY 2006/2007, the cost of the CSO accounted for about 2.5 % of total operating expenses, and was funded by internal cross-subsidy.

Belgium / BIPT (postal regulator)

Belgian postal legislation requires that the regulatory authority BIPT (Belgian Institute for Postal services and Telecommunications) periodically calculates the cost of universal service provision. The results could be used to justify external funding (by a universal service fund). The BIPT methodology relies on the profitability reported for Belgian Post’s product accounts. The cost of the universal service obligation (called “unfair burden” by Belgian legislation⁴) is calculated as the accumulated losses of all universal

² However, chapter 6.1 presents conceptual approaches to valuing monopolies, and a method based on assigning a value to the prohibition on competition in the delivery of letters and access to mailboxes for the USPS.

³ The value of a monopoly need not necessarily be limited to economic profits. British economist John Hicks noted in 1935: “The best of all monopoly profits is a quiet life.”

⁴ Belgian postal legislation calls this loss a “charge inéquitable” (Arrêté royal du 11 Janvier 2006 mettant en application le titre IV (Réforme de la Régie des Postes) de la loi du 21 mars 1991 portant réforme de certaines entreprises publiques économiques, Article 16). This legal term is translated by BIPT as “unfair burden”. The objective of the methodology presented by BIPT is to calculate a number for this legal term. Any number produced by the BIPT model is automatically considered an “unfair burden”.

service products, minus the profits from reserved products. The financial figures are derived directly from the product accounts of the postal operator. However, no reference scenario was developed explicitly, and fully distributed costs do not appear as an appropriate cost concept to estimate which costs could be avoided if the USO were relaxed.

No results of the calculations have been published to date. The state has made no extra payment for compensating the Belgian Post for the universal postal service, and no compensation fund has been established so far.

Denmark / Danish Competition Authority

The Danish competition authority (DCA) has calculated the cost of the USO. There was no clear objective for this undertaking and Danish postal legislation does not address the issue of the cost of the USO. There is no external funding to support the universal service obligation. The DCA focuses on revenue and costs of regulated product groups which are further classified by delivery area (rural and urban). The cost of the universal service obligation is calculated as the total loss of all universal service products minus profits from ten product groups (five product groups multiplied by two delivery areas: rural and urban). The model assumes that, in the reference scenario, delivery would entirely be discontinued in some areas, and does not consider alteration in the frequency of service. In addition, the cost of providing services for blind people is added to the USO cost.

The model is based on data from the regulatory accounts of Post Danmark. We conclude that the costs reported per product group are not a good proxy for avoided cost. The approach of the DCA implicitly assumes that all loss-making product groups (i.e. delivery in rural areas) would be discontinued if there was no USO.

The Danish competition authority estimates the cost of the USO at about 700m DKR (US\$ 149m), or about 7% of Post Danmark's operating expenses in 2005.

Denmark / Copenhagen Economics

The Danish Chamber of Commerce commissioned the firm Copenhagen Economics (CE) in 2007 to estimate the cost of the USO to the incumbent, Post Danmark. Copenhagen Economics (CE) uses specific elements of the universal service obligation as starting

point for the estimation of the cost of the USO. The study analyzes elements of the USO which may unduly restrict the commercial flexibility of Post Danmark. The CE's approach is threefold: First, CE identifies services or service elements which Post Danmark would provide at lower service levels, or discontinue, in absence of the USO. Second, CE estimates the cost of relevant increments, i.e. of those USO elements which restrict the commercial flexibility of Post Danmark. Third, CE estimates the revenues that would be lost if Post Danmark reduced the service level or stopped selected services. The study considers "first round" revenue effects only. However, longer-term effects are reportedly considered in developing a "realistic" alternative business model.

If there was no USO, CE concludes that the incumbent would likely stop providing nationwide Saturday delivery and would charge for services for the blind. Given limitations of the data available from Post Danmark, CE estimates the costs avoided and the revenues lost in case of stopping Saturday delivery, and the cost of providing free services for the blind to about DKK 150m (US\$ 32m) or 1.5% of Post Danmark's operating costs in 2005. Finally, CE argues that this USO cost should be balanced with (un-quantified) benefits from being the designated universal service provider.

France / La Poste

The branch network of the French La Poste is subject to two sets of obligations: the universal service obligation and regional planning requirements. The cost related to regional planning requirements is compensated by tax reductions while the cost of the USO is subsidized internally from reserved services. La Poste periodically calculates the cost resulting from both obligations. Based on econometric modeling and using the existing branch network as starting point, La Poste determines costs and revenues of the profit-maximizing "commercial" branch network the company would operate in the absence of any obligations. The econometric model partially takes the commercial environment of La Poste into account (e.g. competition with other financial companies, reflected by the probability of shifting demands).

The cost of the USO results from the (net) cost difference to the branch network fulfilling the specific density requirements defined by the USO. The cost difference from the "USO" branch network and the current one then determines the cost resulting from

the regional planning requirements. La Poste has not published any results from its calculations of the extra costs of the branch network.

Norway / Norway Post

According to Norwegian legislation, if Norway Post provides evidence that the elements of the universal service obligation result in additional costs which are not covered by revenues, the Norwegian government can “purchase” these services from Norway Post.⁵ This has happened for several years until 2005. These subsidies (“state purchases”) for universal service ended in 2005. Norway Post’s model was used to inform the Norwegian State on the cost of the relevant increments to be covered by the profit of monopoly services and/or by state subsidy.⁶

Norway Post’s approach is guided by the question: What would be a plausible strategy for Norway Post in absence of the USO? What ‘strategic’ service level would be offered? This strategic service level is driven by commercial considerations and uses the elements of the USO as starting point. The reference scenario (in absence of a USO) is characterized by local reductions in the service quality – essentially with regard to delivery frequency. Norway Post assumes that these cutbacks in service for a few areas have only a negligible effect on sales. For the same reason, the potential benefits resulting from nationwide service provision would not be significantly reduced. For 2006 Norway Post reported a net loss of providing unprofitable postal services of NOK 253m (US\$ 50m), or about 2.3% of total operating costs.

Switzerland / Swiss Post

Swiss Post proposed an approach to calculate the universal service burden for three activities: ‘Acceptance and sales’, ‘Transport from and to the retail outlets’, and ‘Delivery route’ (the pure route without any delivery stops). While the first and the

⁵ Norway Post’s license (Art. 4.2) allows for targeted subsidies from the state budget. These targeted subsidies are called “state purchases” by Norwegian authorities (“statlig kjøp av bedriftsøkonomisk ulønnsomme tjenester”, i.e. state purchase of unprofitable services by the State).

⁶ See Konesjon til Posten Norge AS 2007-2010, Article 4.2.

second activity are related to the number of retail outlets (branch network) the third activity essentially comprises the fixed cost of the delivery activity.

In the reference scenario for the activities ‘Acceptance and sales’ and ‘Transport’ Swiss Post would run 600 outlets instead of about 2,500 outlets. Swiss Post assumes that demand (and thus variable costs) would completely shift to the remaining outlets so that the cost of the USO results from the fixed costs allocated to the “closed” offices. In delivery, Swiss Post assumed it would deliver only to 70% of Swiss households. In sum, Swiss Post’s approach resulted in USO costs which amount to about CHF 500m (US\$ 460m) or nearly 8 % of Swiss Post’s operating costs in 2007.

The Swiss regulator rejected the calculation for transportation and delivery activities, but endorsed the model to calculate USO costs for the retail network. In discussion between Swiss Post and the regulator, the benchmark for the retail network was determined to be 1,700 outlets (of which 1,000 are franchise agencies). The USO cost estimation for the retail network, approved by the regulator in 2008, was CHF 200m (US\$ 184m), approximately 3 % of Swiss Post’s operating costs. This estimate is related to fiscal year 2007.

United Kingdom / Postcomm

In 2001, against the background of discussions on the market opening, Postcomm assessed the costs and benefits of the current universal service provision. Postcomm’s approach relied significantly on Royal Mail data. Using revenue and cost data for more than 20,000 mail paths, Postcomm calculated profits and losses at different levels of aggregation. At the level of each mail path, Royal Mail has determined long-run marginal costs which are used by Postcomm as proxy for avoidable costs. The data only allows for considering “first-round” cost and revenue effects, i.e., the direct cost and revenue effects of discontinuing specific mail paths.

Postcomm calculates that at the lowest level of aggregation the total net avoided cost account for GBP 81m (US\$ 181m) or about 1.5 % of Royal Mail’s operating costs in fiscal year 1999/00 (domestic mail and distribution business). At higher levels of aggregation (e.g. at the product level) net avoided costs would be significantly lower.

United Kingdom / Frontier Economics

In October 2007, Postcomm commissioned Frontier Economics to analyze the impact of changes to elements of the universal service obligation on Royal Mail.

In contrast to the previous estimation of USO costs, Frontier Economics calculated the difference between the profits associated with the provision of a service under the given set of universal service obligations, as compared to the profits with an alternative set of universal service obligations. The model further made assumptions about the level of competition. Frontier Economics' approach considers cost effects of changes in Royal Mail's operations and volumes (operational cost model), demand effects, and effects on the competitive position of Royal Mail (market share).

The study analyzed the impact of three important changes to Royal Mail's current universal service on the company's profitability. These changes were 1) lower routing time targets for first class mail; 2) the end of postal service on Saturdays, and 3) the introduction of a single two-day service instead of a first and a second class service.

Frontier Economics concludes that from all universal service elements considered in the study, only the obligation to maintain Saturday collections and deliveries impose a significant constraint on Royal Mail. The additional profits from abolishing Saturday service were estimated to GBP 271m or approximately 4% of operating cost.

2 Efforts to Calculate the Cost of the USO

2.1 Introduction

The concept of a ‘cost of universal service obligations’ was conceptually developed in the 1990ies. Since 2000, empirical efforts were taken in a number of countries to quantify the cost of these obligations in the postal sector. We have carried out research on such efforts and have identified nine approaches: eight in European countries, and one in Australia.⁷ This chapter summarizes the results of our analysis these approaches.

The objective of this chapter is to analyze and compare the different methodologies as well as their results. In order to compare the different approaches, we have sought to clarify, for each of the approaches. The following questions:

1. What was the purpose of the calculations? Was there a legal mandate for the calculation and has it been used to justify financial compensation?
2. Which services or service elements were considered in the calculations? Did they relate to the entirety of the universal service obligation, or to specific parts of it?
3. Which cost concepts were used for the calculations?
4. What ‘reference scenario’ was used? How was the incumbent assumed to alter its services if the USO was with withdrawn?
5. Which cost changes were considered in the calculations? How were revenues estimated to changes as services levels change?
6. What were the results calculated for of the cost of the USO? (To facilitate comparisons, USO costs are stated relative to the incumbents total operating expenditure.)

2.2 Australia / Australia Post

In Australia the postal legislation requires that Australian Post periodically publishes the cost of the “Community Service Obligation” (CSO). In Australian usage, the CSO is the

⁷ Methodologies used in the United States are discussed in Appendix E.1

part of the postal universal service obligation that would not be provided by commercial companies under the prevailing conditions.⁸

The Australian Postal Corporation Act of 1989 (last amended 2007) requires that

“Australia Post shall make the letter service available at a single uniform rate of postage for the carriage within Australia, by ordinary post, of letters that are standard postal articles.

Australia Post shall ensure:

(a) that, in view of the social importance of the letter service, the service is reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business; and

(b) that the performance standards (including delivery times) for the letter service reasonably meet the social, industrial and commercial needs of the Australian community.”

Specific performance standards (number and density of retail outlets, delivery frequency, and routing time targets) are defined in the Australian Postal Corporation Regulations 1998. The methodology to assess the cost of CSO is partly determined by a government direction (see NCC 1998, 184) which requires the application of an avoidable cost approach.

In accordance with government direction, Australia Post calculates the cost of the letter delivery CSO using the avoidable cost methodology. The avoidable cost methodology counts costs as CSO cost if Australia Post did not have to provide the unprofitable components of the letter delivery service. The net cost is the cost avoided less the revenue earned on the service (the revenue should be less than the cost avoided if the service is to be a CSO).

First, Australia Post calculates the appropriate share of ‘mail path’ costs that should be included in the CSO cost. A ‘mail path’ is the path followed by a letter from its point of origin from various Australia Post facilities (such as sorting centers, retail outlets, and destination delivery offices). Australia Post collects data on the costs incurred and revenues earned by her about 4,500 facilities. These figures are then allocated to mail paths using traffic indicators, which estimate how much mail flows through each facility.

⁸ For a documentation of Australia Post’s costing methodology, see National Competition Council (1998): “Review of the Australian Postal Corporation Act”, Vol. 2, p184ff.

On this basis, the costs and revenues of facilities can be allocated to mail paths. For each mail path, costs are compared to revenue. If the cost exceeds the revenue, then the excess is included in CSO cost.

Second, the model examines the costs of facilities used to provide CSO services. If, in the absence of revenue from the CSO mail paths, a facility would not generate sufficient revenue to cover its costs and make a specified return on its capital base, then the loss is added to the CSO costs.⁹

Third, Australia Post attributed a proportional share of total (state and national) overhead costs – i.e. head office costs – to the. For example, if 4 percent of Australia Post mail is carried on CSO mail paths, then 4 percent of state and national overhead costs are included in the CSO costs.

For 2006/07, Australia Post reported CSO costs of AUS\$ 97.3m (US\$ 90m) which accounted for about 2.5 % of operating expenses of the corporation. The amount is not externally funded but financed by internal cross-subsidy.¹⁰

Conclusion

The methodology implicitly assumes that all loss-making mail paths and facilities would be discontinued if the services obligation was relaxed. The calculation method reveals that the approach is static: Only “first round” cost and revenue effects of discontinuing mail paths and facilities are taken into account. Additionally, the approach is based on actual costs which may include costs due to inefficiencies in service provision.

2.3 Belgium / BIPT (postal regulator)

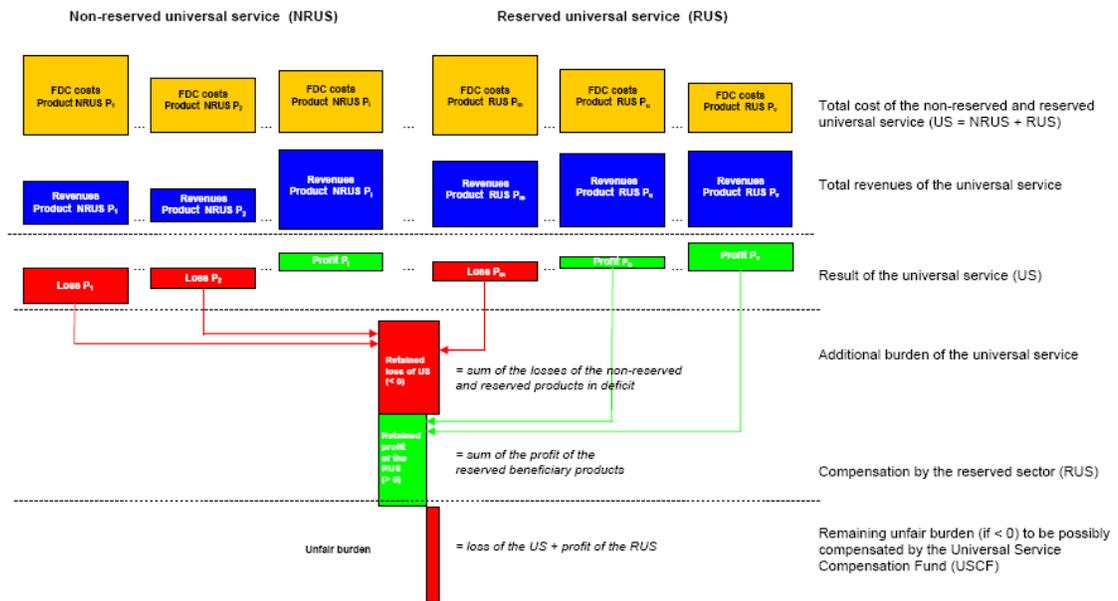
Since 2006 Belgian postal legislation¹¹ requires that the national regulatory authority (Belgian Institute for Postal services and Telecommunications, BIPT) annually calculates the cost of universal service provision. The results could be used to justify external

⁹ For example, if a facility earns \$1,000, but mail on CSO mail paths accounts for \$40, the facility is treated as earning \$960. If the facility costs more than \$960 in operating and capital costs, then the excess of costs over earnings is counted toward the CSO.

¹⁰ See Australia Post, Annual report 2006/07, p. 112.

funding. However, such a universal service fund has not been established to date. BIPT has published a methodology paper which describes the main features of the approach (BIPT 2006).

The services/products of the Belgian national postal operator La Poste/De Post are classified into four categories: 1) reserved universal postal services; 2) universal postal services open to competition, 3) public services which are not postal services, and 4) other services.¹² About 1,200 products have been categorized, about 700 of which were classified as universal postal service products. La Poste/De Post has implemented an activity cost based system. Every year, La Poste/De Post must submit directly and indirectly allocated costs and revenues per product, plus (unallocated) overhead costs.



Source: BIPT 2006.

To calculate the fully distributed cost, the BIPT model distributes the overhead costs to products using distribution keys defined by the European Postal Directive¹³. The model

¹¹ Arrêté royal du 11 janvier 2006 mettant en application le titre IV (Réforme de la Régie des Postes) de la loi du 21 mars 1991 portant réforme de certaines entreprises publiques économiques.

¹² La Poste/De Post is separately compensated by the state for losses of public services.

¹³ Art. 14, 3 of the European Postal Directive requires that costs have to be allocated based on the principle of cost causation. It defines that “a) costs which can be directly assigned to a particular service shall be so

calculates the profit/loss for every product by comparing fully distributed costs and product revenues. According to BIPT's methodology, the 'cost of universal service' corresponds to the sum of losses of all universal service products, minus profits from reserved postal services. If a loss still remains this is considered as the "unfair burden"¹⁴ of universal postal service (see the figure above).

No quantitative results have been published to date. So far, the state has made no extra payment for compensating the Belgian Post for the universal postal service nor has a compensation fund has been established.

Discussion

The calculation is based on fully distributed cost, and uses cost and revenue data provided by Belgian Post. The cost of the universal service obligation is calculated as the accumulated losses of all universal service products, minus the profits from reserved products. The financial figures are derived directly from the product accounts of the postal operator. The value added of the BIPT model is the allocation of overhead cost to products according to the guidelines of the Postal Directive. The approach implicitly assumes that all loss-making universal service products would be discontinued without the USO. Only the "first round" cost and revenue effect are considered. Additionally, the approach is based on actual costs which may include inefficiencies. However, fully distributed costs do not appear as an appropriate cost concept to estimate which costs could be avoided if the USO was relaxed..

assigned; b) common costs, that is costs which cannot be directly assigned to a particular service, shall be allocated as follows: c) whenever possible, common costs shall be allocated on the basis of direct analysis of the origin of the costs themselves; d) when direct analysis is not possible, common cost categories shall be allocated on the basis of an indirect linkage to another cost category or group of cost categories for which a direct assignment or allocation is possible; the indirect linkage shall be based on comparable cost structures; when neither direct nor indirect measures of cost allocation can be found, *the cost category shall be allocated on the basis of a general allocator computed by using the ratio of all expenses directly or indirectly assigned or allocated, on the one hand, to each of the reserved services and, on the other hand, to the other services.*"

¹⁴ Belgian postal legislation calls this loss a "charge inéquitable" (Arrêté royal du 11 Janvier 2006 mettant en application le titre IV (Réforme de la Régie des Postes) de la loi du 21 mars 1991 portant réforme de certaines entreprises publiques économiques, Article 16). This legal term is translated by BIPT as "unfair burden". The objective of the methodology presented by BIPT is to calculate a number for this legal term. Any number produced by the BIPT model is automatically considered an "unfair burden".

2.4 Denmark / Danish competition authority (2007)

The Danish competition authority (DCA, “Konkurrencestyrelsen”) reported in their 2007 Competition Report on the Danish postal market. DCA presented an estimation of the cost of Post Danmark’s universal service obligation for the financial year 2005 (see Konkurrencestyrelsen 2007, 115). There is no without legal requirement to carry out such calculations. Danish postal legislation does not address the issue of the cost of the USO; and external funding is not foreseen.

The competition authority calculates the cost of the USO based on the regulatory cost and revenue accounting data submitted by Post Danmark. It contains cost data of five product groups (letter items below and above 50g¹⁵, periodicals, parcels, and daily newspapers) which are further disaggregated on the elements of the postal pipeline (collection, sorting, transport, and delivery) plus post offices, sale’s business, and overhead costs. Finally, product group costs and revenues are further disaggregated by delivery area: rural and urban. Cost analysis reveals that delivery costs per mail item significantly vary between rural and urban delivery areas while the other cost elements of the postal pipeline are broadly invariant with regard to the population density.

The competition authority then calculated the profit or loss of the five product groups for items delivered in rural and items delivered in urban areas, separately. Additionally, the authority estimated the cost of providing free services for blind people. Finally, they summed up profits and losses per product group. In the authority’s view the overall loss is a reasonable estimate for the cost of the USO which is—in their view—primarily caused by the uniform tariff requirement for USO products.

Product group	Profit and loss		
	Rural areas	Urban areas	Total
Mail items below 50g	[..]	[..]	[..]
Mail items above 50g	[..]	[..]	[..]
Periodicals	[..]	[..]	[..]
Parcels	[..]	[..]	[..]
Dailies	[..]	[..]	[..]

¹⁵ Addressed mail items below 50g are reserved for the incumbent postal operator, i.e. for Post Danmark (monopoly services).

Free services for blind			[..]
Underfunding			[..]

Source: Website of Danish competition authority (www.ks.dk)

The calculation of the Danish competition authority resulted in an estimate for the cost of the USO of about 700m DKR (US\$ 149m) or about 7% of Post Danmark's operating expenses in 2005. However, the authority concluded that this cost would not constitute an unfair burden and expects that due to more pricing flexibility, Post Danmark will be able to decrease this cost after full market opening.

Conclusions

The Danish competition authority regarded the uniform tariff requirement as a key factor for the cost of the USO. Therefore, the methodology focuses on cost coverage of regulatory product accounts per delivery area (urban/rural). The cost of the universal service obligation is calculated as the total loss of all universal service products minus profits from ten product groups (five product groups multiplied by two delivery areas: rural and urban). The model assumes that, in the reference scenario, delivery would entirely be discontinued in some areas, and does not consider alteration in the frequency of service. In addition, the cost of providing services for blind people is added to the USO cost.

The financial data is derived from the regulatory accounts of the postal operator. Only the "first round" cost and revenue effects are considered. However, it is questionable whether the cost reported per product group is a good proxy for avoided cost: Most activities are jointly used by more than one product (especially delivery). The approach of the DCA implicitly assumes that all loss-making product groups (i.e. delivery of mail below 50 grams in rural areas) would be discontinued without the USO. In practice however, stopping the provision of one product group would increase the cost allocated to the remaining product groups.

2.5 Denmark / Copenhagen Economics (2007)

Consulting firm Copenhagen Economics (CE) was charged by the Danish Chamber of Commerce to prepare a study of the cost of the USO to Post Danmark. This study is generally regarded a response to the previous study prepared by the Danish competition authority. The Danish chamber of commerce presented the study in 2007. CE's approach is threefold:

- First, CE identifies services or service elements which Post Danmark would provide at lower service levels, or discontinue, in absence of the USO.
- Second, CE estimates the costs of the relevant increments i.e. of those elements of the USO which restrict the commercial flexibility of Post Danmark.
- Third, CE estimates the revenues that would be lost if Post Danmark reduced the service level or stopped selected services.

CE systematically analyzes which universal service requirements actually constitute a constraint in the business of Post Danmark. The study concludes that the following USO requirements could potentially be regarded as relevant constraints to Post Danmark's business:

- Nationwide delivery of postal items
- Delivery frequency: Six days per week
- Other elements of the USO: free services for blind people, routing time targets, liability requirements (for registered letters), requirements related to postal outlets and street mailboxes.

The following key questions—to be answered for every element of the USO separately—have guided CE's analysis:

Indicator	Interpretation
Does Post Danmark voluntarily offer more than required by the USO?	If Post Danmark delivers more than required, the requirement is not restrictive.
Do the competitors offer more than required from Post Danmark by the USO?	If the competitors deliver more than required from Post Danmark by the USO, the requirement is hardly restrictive. The market will provide universal service for free.

3. Do postal operators in other countries offer more than required by the USO in Denmark, although the requirements in their own USO are lower?	If postal operators in countries with lower requirements voluntarily offer a service, the obligation to offer such service is hardly a burden for Post Danmark.
Which constraints would Post Danmark in all events have as a dominant company under the Danish Competition Act?	Post Danmark will probably be dominant according to the Competition Act, which means that only the USO requirements exceeding the requirements stipulated in the Competition Act must be included.
What are the pros and cons of offering the service?	Provides a qualitative analysis of the pros and cons of voluntarily offering a USO service.

Source: Copenhagen Economics 2008

In there was no USO, CE concludes that the incumbent would likely stop providing nationwide Saturday delivery and would charge for services for the blind. The other elements would not unreasonably restrict the business flexibility of Post Danmark and, thus, would not create a “burden” resulting from the USO in CE’s view.

Given limitations of the data available from Post Danmark, CE estimates the costs avoided and the revenues lost in case of stopping Saturday delivery. CE adds the cost of providing free services for of blind people and estimates the cost of the USO to about DKK 150m (US\$ 32m) or 1.5% of Post Danmark’s operating costs in 2007. Finally, CE argues that this figure should be balanced with (un-quantified) benefits from being the designated universal service provider. CE lists the following advantages:

- Post Danmark has a dominant position in the letter mail market and is ubiquitous due to its nationwide retail and delivery network.
- Post Danmark has built up a valuable brand and a reputation as high quality postal operator. This reputation is additionally enforced by state-controlled quality of service and by the exclusive right to issue stamps with “Danmark”.
- Universal services provided by Post Danmark are exempt from value-added taxes.
- Post Danmark has a well-established postal infrastructure (post office boxes, address database).

Conclusions

Copenhagen Economics (CE) uses specific elements of the universal service obligation as the starting point for the estimation of the cost of the USO. The study identifies

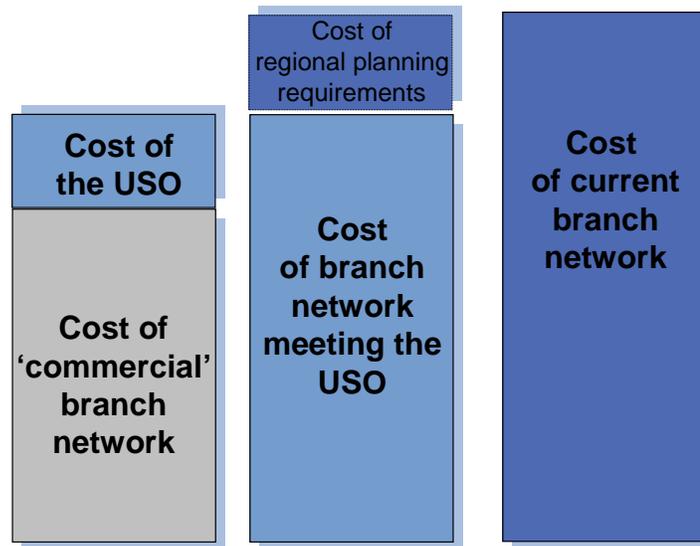
elements of the USO which may unduly restrict the commercial flexibility of Post Danmark. Consequently, it takes into account the commercial environment and actual service provision in relation to USO requirements. The study concludes that nationwide 6-day delivery and free services for the blind incur a USO cost. Due to a lack of detailed cost accounting data CE makes estimations of lost revenues and avoided costs. They consider “first round” revenue effects only. However, longer term effects are reportedly considered in developing a “realistic” alternative business model.

2.6 France / La Poste

The branch network of French incumbent La Poste is subject to two sets of obligations: a universal service obligation and regional planning requirements. La Poste is compensated for the second set of requirements by tax reductions. For this reason, La Poste developed a methodology to identify the cost of the branch network effected by the USO and effected by the regional planning requirements. Based on econometric modeling La Poste determines costs and revenues of the profit-maximizing “commercial” branch network the company would operate in the absence of any obligations. The number of retail outlets reflects the maximum (global) contribution to profit. The econometric model partially takes the commercial environment of La Poste into account (e.g. competition with other financial companies reflected by the switching probability of demand). Cost information is based on actual cost of the branch network. The cost of the USO results from the cost difference between the branch network fulfilling the specific density requirements defined by the USO and the “commercial” network. The cost difference from the “USO” branch network and the current one then determines the cost resulting from the regional planning requirements.

La Poste has developed a model to estimate the cost of the USO that solely addresses the cost of maintaining a network of retail outlets (and does not address other elements of the USO). French incumbent La Poste faces two different requirements relevant to retail outlets: the universal postal service, and regional planning requirements. Both sets define

via density criteria the scope of the branch network.¹⁶ While (additional) branch costs related to the USO shall be financed by revenues from reserved mail services, La Poste is separately compensated for meeting the regional planning requirements (by reductions in property taxes). In order to transparently allocate the costs to the different parts of the branch network La Poste established a method which estimates the counter costs resulting from the USO and the ones resulting from the other public obligations (the regional planning requirements).



La Poste implemented a complex, combined bottom-up and top-down approach (see Garcia et al. 2002). The size of the 'commercial branch network' is determined assuming a profit-maximizing postal and financial company. The determination is based on assumptions on cost and demand, and operational data for existing retail outlets.

¹⁶ French postal legislation requires that "post-office branches providing public access to services covered by the universal service, other than bulk mail, and to information about these services must be so located that at least 99% of the national population and at least 95% of the population of each département is less than 10 kilometres from a post-office branch and all communes with over 10,000 inhabitants have at least one post-office branch per 20,000 inhabitants." (Decree No. 2007-29 of 5 January 2007 on the universal postal service and the rights and obligations of La Poste and amending the Post and Electronic Communications Code, Art. R. 1-1.). Postal legislation defines with regard to regional planning that "Other than in exceptional circumstances, these requirements do not permit more than 10% of a département's population to be further than five kilometres, or more than twenty minutes' car drive under normal driving conditions for the area concerned, from the closest La Poste counter." (LAW n° 90-568 of July 2nd 1990, amended by Law No. 2005-516 of 20 May 2005, relative to the organization of La Poste and France Telecom public service, Art. 6 I)

Cost considerations include a modelling element to estimate the labour cost of a re-dimensioned branch network. Labour cost is driven by the number of manned counters. The number of manned counters is affected by total demand for postal, financial, and other retail transactions and by quality of service requirements defined as average queuing time of customers.¹⁷ Other costs are added which relate to general overhead, occupancy, and back office activities.

The demand (i.e. number of transactions and the related contribution to total revenues) is estimated by taking the probability of losing customers (and thus revenue). After removing a retail outlet, La Poste assumes that to some extent customers would switch to the adjacent post office. The switching rate depends on distance to the next post office and on the degree of competition (European Commission 2005, 23). In the model, total demand of an area depends on socio-demographic factors.¹⁸

The final size of the commercial branch network is determined in a multi-step procedure. The commercial branch network is apparently designed in a way that—at the end of the optimization procedure—postal and financial revenues correspond to the actual (current) contribution of the retail network to overall revenues. Hence, the costs of the remaining ‘non-commercial’ outlets are the costs resulting from the public obligations. These costs are then allocated to the two sets of requirements: first, the cost related to the postal USO is determined by assessing the number and location of branches necessary to meet the legally defined density requirements. Second, the difference between the current branch network and the “USO network” (i.e. commercial network plus “USO branches”) determines the cost of the relevant increment resulting from the regional planning requirements.¹⁹ So far, results are not public available.

¹⁷ La Poste models the cost function based on a waiting queue model (Erlang law). This model determines the number of manned counters provided that x % of customers wait less than y minutes in the retail outlet.

¹⁸ Econometric demand analysis revealed that the demand for financial services depends on the number of households while the demand for postal services is driven by the number of businesses with less than 10 employees (Garcia et al. 2002, 14).

¹⁹ The allocation of the costs of the relevant increments to the different sets of obligations is not described in detail.

2.7 Norway / Norway Post

Norwegian postal legislation generally prohibits cross subsidization between reserved and non-reserved postal services (see *Konsesjon til Posten Norge AS 2007-2010*). If Norway Post provides evidence that the elements of the universal service obligation result in costs which are not covered, cross subsidization from the reserved services is permitted. If the surplus of the reserved area is not sufficient, the Norwegian state can “purchase” these services from Norway Post.^{20,21} This has happened for several years until 2005. State subsidies of universal service (called “state purchases” by Norwegian authorities) ended in 2005. Norway Post’s model was used to inform the Norwegian State on the cost of the relevant increments to be covered by the profit of monopoly services and/or by state subsidy.²²

The current USO model was developed in 2001. Two goals should be achieved: First, the model should be as simple as possible to facilitate communication and to reduce data sensitivity. Second, the model should explicitly identify which services should be purchased (and paid for) by the State. Additionally, the model should inform postal policy with regard to potential changes in design of the USO.

The starting point of the Norwegian approach is the question what would be a plausible strategy for Norway Post in absence of the USO—what ‘strategic’ service level would be offered (Bergum 2001). This (counterfactual) strategic service level is based on a continuation of Norway Post’s current commercial strategy which should be soundly adjusted for the scenario without USO. Bergum (2008) argues that the alternative commercial strategy needs to be credible. Consequently, it should not be in conflict with the strategy already communicated to the owner (the Norwegian government) and the general public. For this reason, Norway Post assumes that the alternative commercial

²⁰ Since the 1990ies Norway Post has calculated the cost of USO; initially, based on a complex calculation model based on the NAC approach (see Bergum 2002). This approach was replaced by a more pragmatic method in 2001 which is described in this section.

²¹ Norway Post’s license (Art. 4.2) allows for targeted subsidies from the state budget. These targeted subsidies are called “state purchases” by Norwegian authorities (“statlig kjøp av bedriftsøkonomisk ulønnsomme tjenester”, i.e. state purchase of unprofitable services by the State).

²² See *Konsesjon til Posten Norge AS 2007-2010*, Article 4.2.

strategy would generally be a continuation of the current strategy which is characterized by high quality of services (including routing time of letters) and customer proximity (nationwide presence).

Bergum (2008) outlines which services Norway Post would adjust or abandon in a scenario without USO:

“Taking into account the rise in electronic communications and other postal substitutes, Norway Post defined its alternative commercial strategy in the absence of a USO as follows. First, in the most rural areas delivery frequency would be reduced from current levels of six deliveries per week. Fifteen percent of the households would likely receive mail five days per week, and another 5 percent would receive mail only twice a week. Second, mobile post office services would be reduced by half. Third, services to the blind would not be offered for free, and some extra services related to insured and registered mail would not be offered at all post offices. Fourth, uniform national rates would not apply to mail and parcels sent to and from Svalbard, an archipelago with about 2,200 inhabitants lying well inside the Arctic Circle far from mainland. [...] The definition of the alternative strategy has later been somewhat modified, mainly stating that banking services would not be offered, but that the number of mobile post offices would be kept roughly the same.”

Thus, Norway Post would generally continue providing basic postal services nationwide. According to Bergum (2008) the methodology is accepted by government as a basis for yearly payments by the State. Norway Post annually estimates the cost of the USO for the next financing year so that the Norwegian parliament can take it into account in the decision on the next year’s national budget. For 2006 Norway Post reported NOK 253m (US\$ 50m) or about 2.3% of their operating costs as net loss of providing unprofitable postal services (Norway Post, Annual Report 2006, 41). No funds were allocated for government procurements in 2006, 2007 or 2008 (see Norway Post, Annual Report 2007).

Conclusions

Norway Post’s approach is guided by the question: What would be a plausible strategy for Norway Post in absence of the USO? What ‘strategic’ service level would be offered? This strategic service level is driven by commercial considerations and uses the elements of the USO as starting point. The reference scenario (in absence of a USO) is characterized by local reductions in the service quality – essentially with regard to delivery frequency. Norway Post assumes that these cutbacks in service for few areas

have only a negligible effect on sales. For the same reason, the potential benefits resulting from nationwide service provision would not be significantly reduced. Norway Post annually estimates the cost of the USO for the next financing year (based on budget costs) so that the Norwegian parliament can take it into account in the decision on the next year's national budget. Having received such subsidies for several years, the government ceased to subsidize Norway Post in 2006.

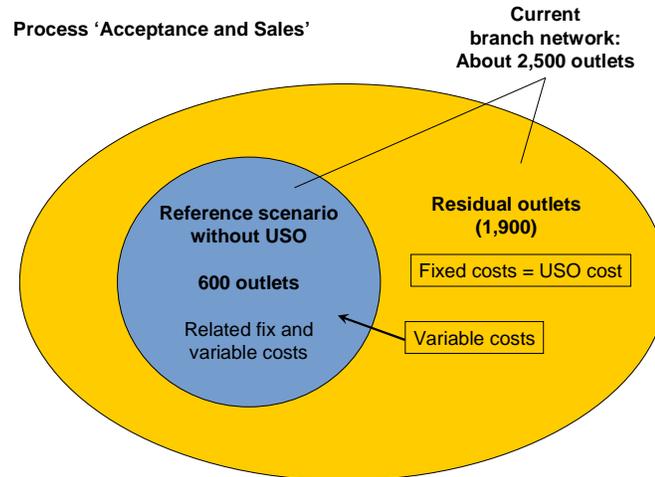
2.8 Switzerland / Swiss Post

Swiss postal legislation requires Swiss Post to calculate annually the so-called “*Infrastrukturbeitrag*” (“infrastructure contribution”) which is a financial contribution to the costs of the branch network of Swiss Post. This cost is covered by internal cross-subsidies, from the surplus of reserved postal services (no external funding). In the past this contribution resulted from the difference between revenues and costs of Swiss Post's business unit *Poststellen und Verkauf* [post offices and sales]. The revenues of *Poststellen und Verkauf* consist mainly of transfer payments from other business units of Swiss Post (Mail, Logistics, and Financial Services) which are based on the number of transactions (e.g. acceptance of a registered letter). In 2004 PostReg required that the transfer payments shall cover total variable cost and the fix cost related to the operationally necessary branch network (PostReg 2004).

In response to PostReg's requirement Swiss Post proposed an approach to calculate the universal service burden in order to replace the calculation of the “infrastructure contribution”. Swiss Post defines the universal service burden as the additional costs emerging from the universal service obligation (see WIK-Consult/BDO 2007). As starting point Swiss Post derived a reference scenario (in absence of the USO) with respect to three processes: ‘Acceptance and sales’, ‘Transport from and to the retail outlets’, and ‘Delivery route’²³. While the first and the second activity are related to the number of retail outlets (branch network) the third activity essentially describes the fixed

²³ Delivery route means the pure round the postman has to go without any stop to deliver mail items. This route starts and ends at the delivery office.

cost of the delivery activity.²⁴ The reference scenario addressed the questions how many branches Swiss Post would need and how many households would receive delivery (coverage).



The figure above illustrates the calculation procedure for the process 'Acceptance and sales'. In the reference scenario Swiss Post would run (in sum) 600 outlets compared to about 2,500 outlets in 2006.²⁵ The figure of 600 outlets was determined by consulting the Swiss Post's three key business units: Mail, Logistics (incl. parcel services) and Financial Services. Each business unit reported an estimation of how many outlets it would need to manage the business. The business area Financial Services used the average number of bank counters of selected financial companies as a benchmark. All other business units reported they would need less than 600 branches.

Swiss Post assumed that total demand of the current 1,900 outlets would switch to these 600 outlets, i.e. no revenue would be lost. For this reason the universal service burden exclusively would arise from the fixed costs of the 1,900 outlets while the variable costs would be relocated to the 600 outlets. The cost data of the branch network was taken from Swiss Post's internal cost accounts. Swiss Post selected 600 outlets

²⁴ Swiss Post considers the costs of the other delivery activities as variable costs.

²⁵ It should be noted that more than 90 % of the outlets are directly driven by Swiss Post with own personnel

according to the number of transactions.²⁶ They would basically be located in densely populated areas.

Then Swiss Post estimated the avoided transport costs resulting from the reduction of the branch network from 2,500 to 600 outlets based on an operations research model.

In delivery, Swiss Post focused on (fixed) costs related to the pure round the postman would have to go without any stops to deliver mail items. The costs related to other elements of the delivery activity were considered as variable. As a benchmark for the 'reference case', Swiss Post referred to delivery organizations that distribute newspapers and magazines early in the morning.. These organizations covered about 70% of Swiss households in 2005. In the reference scenario, Swiss Post assumed it would equally reduce coverage to 70% of Swiss households, those located in high density areas. For these households, Swiss Post estimated the average delivery cost per household. Swiss Post used this cost figure as benchmark for delivery costs to the 30% remaining households. The cost difference between unit costs in the 'profitable areas' (70% of population) and 'non-profitable areas' (30% of population) was considered as cost of the USO.²⁷ In sum, Swiss Post estimated the cost of the USO would amount to about CHF 500m (\$ 501m) or nearly 8 % of its operating costs in 2007 (see BDO/WIK-Consult 2007, 60).

After a review of Swiss Post's approach, the Swiss regulator accepted only the approach related to the activity "Acceptance and sales". However, the regulator criticized the benchmark used for the 'commercial network'. In particular, the regulator held the

²⁶ Swiss Post arranged the outlets according to the number of transactions per type (mail, parcel, or financial transaction), calculated the simple average of these ranks per outlet, and re-ranked the outlets according to this average rank.²⁶ The 600 retail outlets with the highest score were then selected.

²⁷ A delivery route consists of x delivery segments where buildings (and households) are located at. Swiss Post has measured the average delivery time per household at the level of each delivery segment. Then, it has arranged the households according to the average delivery time and ranked in 5%-percentiles in ascending order. The first 70% of the households are categorized as located in high-density areas while the remaining 30% are classified as located in low-density areas. Swiss Post then calculates the average delivery time per household of the first 70% households as benchmark for the residual 30%. Finally, it subtracts this benchmark from the actual average delivery time per household, and multiplies the result with the total number of households living in "low-density" areas. Swiss Post classifies the resulting cost difference as additional cost resulting from the USO. However, this figure does obviously not correspond to the cost that Swiss Post would avoid when not providing delivery services to the 30 % of households living in "low-density" areas.

view that transformation of post offices to agencies should be included in the reference scenario. In the view of the regulator, the number of 600 post offices was not credible, and at odds with the general business strategy of Swiss Post. Based on separate benchmark analysis of Swiss industries (retail, banking, gas stations) and national postal operators in Europe, the regulator and Swiss Post agreed on an alternative benchmark for the size of the branch network for the reference case. This would have 1,700 outlets: 700 with Swiss Post's personnel and 1,000 postal agencies. The difference in fixed costs between the current branch network and the hypothetical commercial network amounts to ca. CHF 200m (US\$ 200m) or about 3 % of Swiss Post's operational expenses in 2007.

Discussion

Swiss Post proposed an approach to calculate the universal service burden in order to replace the calculation of the *Infrastrukturbeitrag* ("the USO cost related to the retail network"). The universal service burden is considered as the additional costs emerging from the universal service obligation. Swiss Post explicitly derives a reference scenario for the branch network: The Company would reduce the number of outlets from currently 2,500 to 600 (revised to 1,700 in the agreement between Swiss Post and the regulator). However, Swiss Post did not consider any revenue effects resulting from this reduction but assumed that total demand for mail, parcel, and financial services would switch to the adjacent outlet. Consequently, Swiss Post estimated that total fixed cost of the redundant retail outlets could be avoided in the reference scenario.

For the delivery reference case, Swiss Post proposed reducing services to 70% of Swiss households. The methodology for this calculation was rejected by the Swiss regulator.

2.9 United Kingdom / Postcomm (2001)

In UK sector-specific postal regulation started with the Postal Act of 2000. The key duties of the British postal regulator Postcomm are to safeguard the provision of the universal postal service and—subject to the first duty—to promote effective competition. By doing this Postcomm must have regard to the need to ensure that—i.a.—Royal Mail is able to finance the activities required by its license. Postcomm published a discussion

document in 2001 on the assessment of costs and benefits of current universal service provision. The purpose of Postcomm's assessment was to provide an initial analysis of the potential costs and benefits that might be associated with Royal Mail's provision of the universal postal service in the current market environment.

Royal Mail²⁸ had provided data to Postcomm at a highly disaggregated mail path ("route") level. A single mail path defines a service across a combination of attributes. Royal Mail's data are differentiated by six dimensions. These dimensions are further disaggregated by a number of sub-categories. The dimensions (and the number of sub-categories within these dimensions) include: the distance between collection and delivery point (x3); the type of product or service purchased, e.g. First Class Stamped Mail, Second Class Stamped Mail, Metered Mail (x22); the size or format of the item posted (x4); the type of recipient, i.e. residential or business (x2); the density of delivery area, e.g. rural or urban (x5); and the weight of the item posted (x11). There were 29,040 such potential routes of which 20,340 had volumes in 1999/2000.²⁹

Royal Mail has provided an estimate for average revenues and a proxy for avoidable costs for each combination of sub-categories. As a proxy to long-run avoided costs, Royal Mail has provided Postcomm with estimates for its long run marginal costs (LRMCs)³⁰ associated with a variety of services. These LRMCs are intended to reflect the costs that Royal Mail would incur (or avoid) as a result of discrete changes in volumes.

LRMCs for mail paths have been derived by taking the marginal activity costs relevant to a particular dimension of a mail path (e.g. distance) and allocating those marginal activity costs across the sub-categories of the dimension (e.g. across the three distance sub-categories). These costs are then attributed to a particular product in proportion to the

²⁸ At that time Royal Mail Holdings had been called Consignia Holdings, in November 2002 Consignia was renamed to Royal Mail.

²⁹ In 2007 Postcomm commissioned LECG to assess the USO burden of Royal Mail by applying a similar methodology. This calculation was based on data of more than 40,000 routes (Francey 2007).

³⁰ The cost incurred in processing additional volumes of mail, assuming that levels of efficiency and service are maintained and that changes are made to all resources that need to be changed in order to achieve this. The assessment is typically made over a 3 to 5 year time horizon. (Royal Mail 2007, 29)

allocation of that product's volume across the components of the route dimension. Finally, Royal Mail submitted average unit costs for mail items of each of the mail paths.

Royal Mail provided data for costs, revenues, and profits for approximately 20,000 mail paths. The calculation implicitly assumed that Royal Mail would (and could) discontinue every mail path whose revenues did not cover its LRMCs. Postcomm has used the data provided by Royal Mail to estimate the cost of the USO at different levels of aggregation.

Postcomm estimated that at the lowest level of aggregation (~20,000 mail paths) the total net avoided cost would account for GBP 81m (US\$ 181m) or about 1.5 % of Royal Mail's operating costs in the business year 1999/00. At higher levels of aggregation, the net avoided costs would be significantly lower.

Discussion

The British regulator Postcomm used extremely disaggregated data based on more than 20,000 "mail paths". Hence, the estimation is based on costs and revenues per mail path. However, Postcomm criticized that the product portfolio would not necessarily reflect the USO because the services were usually provided above the minimum required by Postal Act. Additionally, Postcomm had serious doubts that withdrawing some highly disaggregated "loss-making" mail paths was commercially viable and could be realized in practice. The withdrawal might not be possible without also withdrawing profitable mail items. Furthermore, due to joint production the cost of remaining mail paths may increase. These second-round cost effects were not considered in the approach. Moreover, Postcomm detected that the level of the "USO burden" depends on the aggregation level of the mail paths: The lower the aggregation level the higher the "burden". Finally, Postcomm pointed out that the approach did not consider any wider benefits from being the sole universal service provider.

2.10 United Kingdom /Frontier Economics (2008)

In October 2007 Postcomm commissioned Frontier Economics to analyze the impact of changes to elements of the universal service obligation on Royal Mail. In contrast to the previous estimation of USO costs, Frontier Economics calculated the difference between

the profits associated with the provision of a service under the given set of universal service obligations, as compared to the profits with an alternative set of universal service obligations. The model further made assumptions about the level of competition (see Frontier Economics 2008, 75). By this way, Frontier Economics assesses which of the selected universal service elements significantly constrain Royal Mail. The following regulated elements of the universal service are considered in detail.³¹

1. First class quality of service: The current target (93% next day delivery) would be relaxed to 90% and 85%.
2. Collection and delivery times: The current (unregulated) delivery times would be changed up to two hours earlier or later.
3. Collections and deliveries per week: (From six day service down to five weekly deliveries).
4. Class of mail: The currently required first class (D+1) and second class (D+3) services would be replaced by a single D+2 mail class requirement.

Frontier Economics did not explicitly develop a reference scenario. I.e. the report did not make any assumptions about the changes expected from Royal Mail if the USO was relaxed. Alternatively, the report investigates the effect of individual parts of the USO on Royal Mail's profitability. Therefore, Frontier Economics' results are not directly comparable with those of other studies. Even though Frontier, for example, calculates the impact of reducing the number of weekly deliveries on Royal Mail's profitability, the report does not discuss the probability of reasonableness of such service reductions for Royal.

Frontier Economics' approach considers cost effects driven by changes in Royal Mail's operations and volume (cost model), demand effects (demand), and effects on the competitive position of Royal Mail (market share). The subsequent figure summarizes the model architecture and the key questions to be answered in each of the elements:

³¹ See Frontier Economics 2008, Table 7. Frontier Economics further considers changes in the delivery and collection times and the evening packet delivery service. Both elements are not specifically regulated in the USO. Additionally, Frontier Economics briefly discusses the removal of bulk mail services priced at a

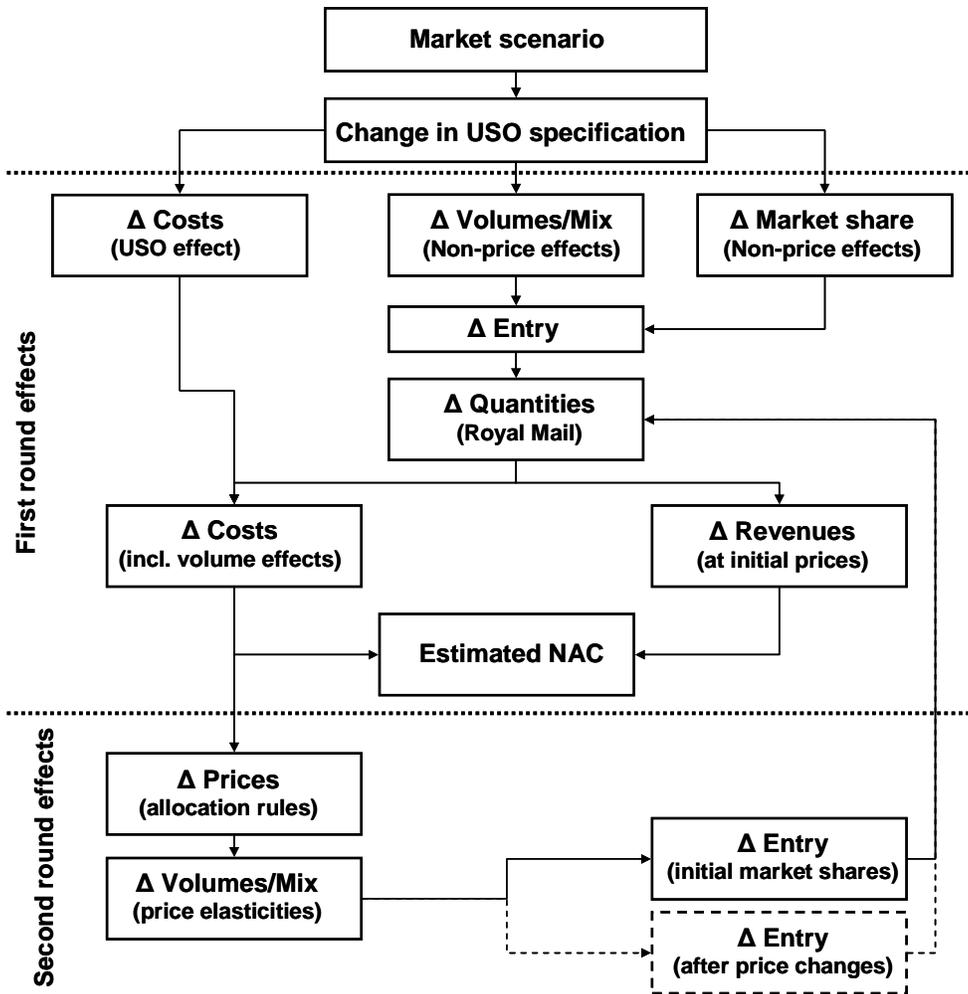
Cost model	Demand	Market share
Which operational activities would change? If volumes change, what happens to cost?	How will overall volume vary with a new service specification? What will happen to product mix—across USO and non-USO products?	Will volumes move to more or less contestable products? Will Royal Mail become more or less attractive relative to other operators?

Source: Frontier Economics (2008, Figure 1)

Further, Frontier Economics separates first round and second round effects: The first round assesses changes in volumes and costs before considering any possible price changes and results in an estimation of the net avoided cost (NAC). The second round primarily focuses on price effects (without impact on the level of estimated net avoidable cost estimated in the first round³²) which further effect volume (via price elasticities) and costs of Royal Mail's operations.

uniform tariff from USO but they have not applied their approach to calculate the NAC (see Frontier Economics 2008, 66).

³² Frontier Economics assumes that the full net avoidable costs is passed through to customers in the form of lower prices by mimicking a price control that allows Royal Mail a constant level of profits.



Source: Frontier Economics (2008, Figure 2)

The model estimates two sets of costs, revenues and volumes: the costs, revenues and volumes that Royal Mail would carry under the existing universal service specification, and the costs, revenues and volumes that Royal Mail would be expected to carry if the service specification changed (Frontier Economics 2008, 21).

Frontier Economics analyses the impact of changes in universal service elements under three alternative market scenarios. The first scenario uses actual volumes, revenues and market shares (2006-07); the second scenario uses forecasted market volumes under the assumption of intensified “access” competition (2009-10, ‘access’ scenario market shares); the last scenario uses forecasted market volumes under the assumption of intensified end-to-end competition (2009-10, ‘end to end entry’ scenario market shares).

Frontier Economics makes extensive use of Royal Mail data to populate the model with volume and operational information. Cost effects are estimated based on an operational cost model. This model is based on Royal Mail's structure of the logistical network (actual locations and number of collection hubs, mail centers and delivery offices, actual volumes transported between the locations) and shall estimate the factor input and related cost at the level of the elements of the postal pipeline (collection, transport between collection hubs/delivery offices and mail centers, transport between mail centers, in-office and street delivery activities). Demand effects are estimated using econometric evidence (based on data provided by Royal Mail), market research³³, and interviews with large mailers.

The key results of Frontier's report to Postcomm:

1. First class quality of service down to 85%: Very small first round NAC resulting from cost savings in air transport (GBP 76m). The impact on the market share is neutral.
2. No Saturday collection and delivery: Generally, revenue effects are limited while Royal Mail could realize considerable cost savings. The first round NAC amounts to GBP 271m or about 4 % of Royal Mail's operating costs in their mail business in 2006/07.³⁴
3. On single class of mail (D+2) instead of first and second class (D+1 and D+3) mail: Frontier Economics estimates a negative NAC due to high losses in market share and, consequently, lower revenues. Cost savings might be higher if Royal Mail restructured its logistical network (reduction of mail centers and delivery offices). Frontier Economics concludes that Royal Mail is likely to maintain a next day service even without a formal universal service requirement (Frontier Economics 2008, 63).

Frontier Economics concludes that from all universal service elements considered in the study, only the obligation to maintain Saturday collections and deliveries impose a

³³ Customer surveys (business customers, small and medium-sized enterprises, residential) are regularly commissioned and published by Postcomm (see www.psc.gov.uk/competition/business-customer-survey.html).

³⁴ See Royal Mail, Regulatory Financial Statements 2006/07, p. 11, Total Mails operating costs: GBP 6.64b.

significant constraint on Royal Mail. The additional profits from abolishing Saturday service were estimated to GBP 271m or approximately 4% of operating cost.

2.11 Conclusions

With regards to the purpose of the net cost calculations, a first result is that only very few methodologies were applied to justify actual compensation paid to postal operators. The results of USO cost calculations were generally used to inform liberalization policies, by assessing whether substantial costs results (or would result) from universal service obligations in a liberalized market.

The table on page 38 summarizes our analysis of international efforts to calculate the USO. As regards the methodologies adopted to calculate USO costs, we found two broadly distinct categories of approaches:

The first category, that includes most of the earlier efforts, is based on product accounts. The approaches of this category assess the profitability of individual postal products, or aggregate product groups, or ‘mail paths’ – combination of products, types of customers (e.g. business or residential), different areas where mail is postal or delivered, or other features. Most approaches of this category do not explicitly determine a ‘reference scenario’, i.e. they do not discuss explicitly how the postal operator would change service levels if the USO was withdrawn. In these approaches, the cost of the USO is calculated as the sum of deficits of loss-making products (or product groups or mail paths). An implicit assumption of these methodologies is that all products (or product groups or mail paths) that deliver negative results would be discontinued by the postal operator if there was no universal service obligation.

The second, more recent, category of approaches analyses the cost of alternative service levels: It is questioned which elements of the USO the postal operator would alter, or discontinue, in absence of a USO. Hence, a ‘reference scenario’ is specified in these approaches. Generally, the second category of approaches can be considered to

conform to the theoretical concept of the “profitability approach” which was developed (separately) by John Panzar and Helmuth Crémer.³⁵

In recent quantitative applications, there is a trend towards the second category. There appears to be wide consensus that the relevant approach towards measuring the cost of the USO is to compare the additional profits postal operators could achieve if there were no USOs imposed on these operators. The crucial element of all these approaches is the determination of a services level the postal operators would provide if the USO was relaxed. Based on our review of international USO costing methodologies, we conclude that USO costs, if there are any, are most likely to be related to three areas. Absent a USO, postal operators may increase profits by

- (1) Reducing the frequency of delivery from five or six deliveries per week to less frequent services. Such service alterations appear most important in areas with high unit cost for delivery, e.g. in the most rural areas.
- (2) Reducing the number of postal offices, and substituting traditional postal offices for contracted agencies.
- (3) Removing non-commercial price schemes and ‘social prices’. In particular, postal operators may stop delivering mail for the blind without a charge. (Regular postage might be introduced for services for the blind. Alternatively, the services could continue to be offered free in return for a government subsidy.)

The recent models did not find a relevant cost related to requirements to provide nationwide service at a uniform rate.³⁶

³⁵ See Crémer, H., Grimaud, A. und J.-J. Laffont (2000): “The Cost of Universal Service in the Postal Sector”. In: M.A. Crew und P.R. Kleindorfer (Hrg.): *Current Directions in Postal Reform*, Kluwer Academic Publishers, Boston, MA, S. 47-68; and J. Panzar (2001): “Funding universal service obligations: the costs of liberalization”. In: M.A. Crew und P.R. Kleindorfer (Hrg.): *Future Directions in Postal Reform*, Kluwer Academic Publishers, Boston, MA, S. 101-15.

³⁶ Note that many European postal operators are not barred from charging non-uniform rates to bulk mailers.

Table: Summary of international efforts to calculate the USO

Country Model developed by	Australia Australia Post	Belgium BIPT (postal regulator)	Denmark Danish competition authority	Denmark Copenhagen Economics for Chamber of Commerce	France La Poste	Norway Norway Post	Switzerland Swiss Post	U.K. Postcomm (postal regulator)	U.K. Frontier Economics for regulator Postcomm
Purpose	Legal reporting requirement	Legal requirement to calculate	Inform policy	Inform policy	Reporting required by regulator	Determine amount of subsidy (until 2005)	Legal reporting requirement	Inform policy	Inform policy
Model category	Product accounts (partly)	Product accounts	Product accounts	USO elements	USO elements	USO elements	USO elements	Product accounts	USO elements
Services / USO elements considered	“Mail paths” Facilities (essentially post offices) Percentage of overhead costs	Product accounts for all universal service products (about 700)	Product groups per delivery area (rural/urban) Free services to the blind	Nationwide delivery Delivery frequency Routing time targets	Post offices	Delivery frequency Post offices Free services to the blind	Post offices Nationwide delivery	“Mail paths” (about 20,000)	Delivery frequency Routing time targets Single class of mail (only D+2 service)
Reference scenario (no USO) established?	No	No	No	Yes	Yes	Yes	Partly (only for post offices)	No	No (Separate calculations for various changes in service levels)
Cost concept	Avoidable Costs	Fully Distributed Costs	Unclear	Avoidable Costs	Avoidable Costs	Avoidable Costs	Avoidable Costs (only for post offices)	Avoidable Costs	Avoidable Costs
Result of calculation	FY 2006: AUS\$ 97.3m (US\$ 90m) 2.5% of op. ex.	Not published	FY 2005: DKK 700m (US\$ 149m) 7% of op. ex.	FY 2005: DKK 150m (US\$ 32m) 1.5% of op. ex.	Not published	FY 2006: NOK 253m (US\$ 50m) 2.3% of op. ex.	FY 2007: CHF 500m (US\$ 501m) 7.8% of op. ex.	FY 1999/00: GBP 91m (US\$ 181m) 1.5% of op. ex.	FY 2006/07: Saturday service: GBP 271m (US\$ 542m) 4% of op. ex.
External funding?	No	No but possible	No	No	No but possible	Yes, until 2005	No but possible	No	No

3 Efforts to Calculate the Value of the Postal Monopolies

3.1 Introduction

The authors have carried out extensive research for methodologies that calculate the “values of the postal monopoly”. Despite a thorough review of literature, and direct questions posed to many postal regulators worldwide, we are not aware of any serious effort made internationally to estimate the value of the postal monopoly.

3.2 Postal monopoly

Ubiquitous collection and delivery of postal items at uniform tariffs, and additional requirements in service standards (e.g. nationwide counter service) are constituent elements of the postal universal service. This may result in a decoupling of the direct relationship between the cost to offer the service and the price paid for it. Consequently, postage price does not necessarily reflect the actual cost of the service. In order to safeguard the financial stability of the postal operator, services priced under cost have to be cross subsidized by services being priced above cost.

The system of cross subsidy has traditionally been maintained by restricting entry to the postal market by means of a postal monopoly. In EU postal legislation, the scope of the mail monopoly is closely linked to the maintenance of the universal postal service. Currently, the reserved area may include only items of domestic and incoming cross-border correspondence which weigh less than 50 grams and for which the transportation charge is less than two and a half times the public tariff for an item in the lowest weight step of the fastest standard category of service. Within these limits, postal services for domestic and incoming cross border correspondence may be reserved for the USP only “to the extent necessary to ensure the maintenance of universal service”.³⁷

³⁷ The reserved area may be extended in two respects. First, the reserved area may include direct mail falling within the same price and weight limits but again, only “to the extent necessary to ensure the maintenance of universal service”. Second, the reserved area may include outgoing cross-border mail falling within the same price and weight limits but only “to the extent necessary to ensure the maintenance of universal service, for example, when certain sectors of postal activity have already been liberalized or because of the specific characteristics peculiar to the postal services in a Member State”.

Beneath this ceiling of the potentially reservable area, the Postal Directive's repeated insistence that a reservation may be introduced only "to the extent necessary to ensure the maintenance of universal service" implies a duty to adjust the reserved area to the economic requirements of universal service. This provision of the Directive has been more honored in the breach than in the observance.³⁸ No EU Member State has prepared a study that relates the scope of the reserved area to the need to maintain universal service. The only substantive studies undertaken by Member States (SE, UK) have concluded that no reserved area is needed to maintain universal service once the USP has been given a reasonable opportunity to adjust to competitive conditions. UK Postcomm's analysis indicates

"that the financial position of Royal Mail and hence its ability to provide the universal service is more vulnerable to inefficiency and a lack of innovation than to market share loss from competition. Postcomm has no doubt that the best way to encourage Royal Mail to become more efficient and innovative is by introducing the rigors of competition. In this way, competition is a means to safeguarding the universal service" (UK Postcomm 2002, 29).

By end of 2010, postal monopolies will expire in most EU Member States. This decision implicitly reflects the common understanding in the EU that safeguarding the postal universal service does not necessarily require a postal monopoly.

The fact that postal operators around the world have been arguing strongly in favor of keeping their monopolies suggests that there must be substantial value to this monopoly.³⁹ However, we are not aware of any serious effort made internationally to estimate the values of postal monopolies.

3.3 Mailbox monopoly

The mailbox monopoly in the United States appears to be unique. Consequently, there are no precedents of calculations for determining the value of the mailbox monopoly.

³⁸ See WIK-Consult 2004, 45-

³⁹ The value of a monopoly need not necessarily be limited to financial profit. British economist John Hicks noted in 1935: "The best of all monopoly profits is a quiet life".

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