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Agenda

Advancing economics in business

A class apart: costing first- and second-class mail

The liberalised postal market envisaged in the European Commission's draft Directive (published in October) will place an even greater emphasis on the need for appropriate costing methodologies to be developed. This article explores the issue of product costing in the postal sector and, in particular, examines what the impact of more economic costing approaches may have for the differential between first- and second-class (priority and non-priority) costs

As the postal market liberalises, there is a real need for stakeholders to understand the relationship between costs and prices. The recent revisions to the European Postal Directive affirmed the principle of a relationship between prices and costs.[1] The previous requirement for prices to be 'geared to costs' looks set to be replaced with a requirement for prices to be 'cost-orientated'. An additional requirement that prices should 'stimulate efficiency savings' has also been proposed. Regulators and new entrants will have an interest in ensuring that product prices reflect costs so that competition is not hindered. Similarly, incumbents will want to understand the relationship between costs and prices in order to uncover any anomalies where prices may appear to be aligned with costs, but where this reflects the design of the costing system rather than reality. They will also have a strong interest in monitoring product profitability. In meeting all of these aims, there is a need for a robust product costing approach, reflecting economic reality.

This article examines the issues of product costing in the postal sector. Particular focus is given to cost differentials between first- and second-class (priority and non-priority) mail, although the underlying economic concepts can be applied more widely.

Conventional approaches to cost allocation

The conventional approach to allocating costs between products in a multi-product firm frequently involves the use of various allocation metrics. These metrics may be based on inputs, such as the number of labour-hours associated with the production of products or services, or the volume of outputs (letters). This approach to product costing appears to be endorsed by the European Commission, both in the existing Postal Directive and in the new draft Directive.

At some point in a costing exercise, it is almost inevitable that these techniques of allocation are adopted if full cost allocation is to be achieved (see below). As such, the approach in the Directive has justification. However, these techniques have a number of potential flaws—and there is no inherently correct approach that can be taken—which mean that, if adopted too hastily, poor product costing may result. Ultimately, these flaws come down to the fact that this approach to costing often fails to reflect the factors driving the *causality* of the costs. Take the difference between first- and second-class mail. It may be the case that night-shift workers sort both first- and second-class mail. However, it is only because of the requirement (or decision) to provide a next-day delivery service that these workers are employed at all. Alternatively, some sorting machines may be required to provide a first-class service, but are on occasion used for sorting both first- and second-class mail. A traditional approach to cost allocation might base the allocation of these costs on a simple metric such as utilisation of the machines or time spent by staff sorting classes of mail. However, this approach would miss the point that these costs were only incurred ('caused') to provide a particular class of service in the first place.

This is increasingly important as the postal sector becomes subject to greater competitive pressures. If prices are set on the basis of costs allocated on this basis, inappropriate signals may be sent to entrants/customers. In the example above, prices will be set at an inappropriately low level for first-class mail—no otherwise identical entrant could attempt to provide this service in isolation, incur all of the costs necessary to provide this service (including the employment of night-shift workers and the use of additional sorting machines), and still compete with the incumbent. The reverse will be the case for non-priority mail. In effect, the costing

system could generate cross-subsidies between those delivering non-priority mail and those delivering priority mail.

The economic solution to this issue is to develop principles of costing that accord more closely with the principle of causality. There is a need to begin by identifying the costs that, in the long run, are incremental to, or are caused solely by, a particular class of service. Thinking in this way would capture the principle of causality discussed above, and thereby lead to more effective price signals. The benefits of costing according to these long-run incremental cost (LRIC) principles have been noted by a number of regulators. For example, Ofcom, the UK telecoms regulator, has stated that:

> Ideally for economic efficiency, charges should be set in a way which encourages buyers to take account of the resource costs of their purchasing decisions … In a regulated environment, LRIC+ based charges are the ones that most accurately reflect the resources consumed by the provision of the services and, thus, correspond more closely to the charges that would occur in a fully competitive market.[2]

However, while the discussion in this area has focused on incremental costs, it is often clearer to think 'in the opposite direction'—ie, to consider those costs that would be saved as a result of no longer having to provide a particular service (ie, avoided costs). To a first degree of approximation, this should give the same results, as noted by Ofcom:[3]

> Long run incremental costs … can also be seen as the costs that the regulated firm would avoid if it decided not to provide the regulated service(s) any longer, taking the long run perspective.[4]

Implementing economic costing principles

The theoretical benefits of considering cost allocation from this incremental/decremental perspective are reasonably established. However, the practical challenges it creates, especially in the postal sector, should not be underestimated. Four such challenges are explored below.

1. Modelling incremental/decremental costs

Even if the 'decremental' perspective represents the clearest way to conceptualise the issue of incremental costs, it does not in itself make the modelling approach any easier.[5]

Approaches to the modelling exercise include the following.

- **The use of activity-based costing (ABC)**. One approach is to make use of existing ABC models and to assume that the activity levels within such models change from their current levels to zero. However, although ABC models are good at estimating the changes in costs from relatively small changes in activity levels, it is not clear how effective they are when large changes from existing volume/activity levels are contemplated.[6]

- **Econometric techniques**. A related approach is to make use of econometric techniques to assess the relationships between costs, activities and outputs and use these econometrically estimated cost functions to explore how costs would change in the event of the relevant cost drivers shrinking towards zero. This is the approach taken by the United States Postal Service when estimating the costs of its products.[7]

- **Logistical (and/or engineering) modelling**. The final approach is to use engineering and/or logistical techniques to estimate incremental costs. These techniques have the advantage of being able to estimate incremental costs from the top down (ie, costs saved, or decremental approach) as well as the bottom up (strictly incremental approaches). However, the approach to modelling of this type differs somewhat from that 'typically' taken in cost modelling exercises. It is also subject to an element of informed judgement.

2. Treatment of volume loss

Another issue that frequently arises when thinking about how to implement incremental/decremental costing principles is, when undertaking the 'thought experiment' of reducing volumes, what should 'happen' to those volumes? There are two broad options:

- to assume that the volume is 'eliminated'—ie, to work out what the costs would be without any volume for that particular product or service class;
- to assume that the volume is 'transferred', either in part or in its entirety, to a different set of products.

It is often considered that the latter option would be more relevant; after all, if a priority service were not to be provided then a substantial proportion of this traffic would make use of the non-priority service. However, this misses the point that what is being considered is simply a thought experiment to determine which costs that a company incurs are associated with which products; the services in question would never actually be withdrawn. By considering only the 'net' change in costs in a situation, a large proportion of the costs associated with providing a product would not be captured.

3. Network redesign

A challenge similar to that created by the hypothetical nature of the cost allocation exercise is determining the extent to which, when assessing the decline in volumes, fundamental network redesign should be considered.

The advantage of contemplating more fundamental network redesign is that it is likely to lead to greater decrement in costs being estimated, hence a greater proportion of costs being allocated to a particular product (service class), and less need to rely on apportionment techniques. However, as well as the practical difficulties, there is a risk that it will detract from the initial point of the exercise: to understand how the current costs of a company should be allocated between services. Considering fundamental network redesign is more likely to raise questions about whether the current costs of the postal operator are appropriate than it is to assist in the cost allocation exercise. However, this does not mean that if, on the withdrawal of a particular service the costs of an entire part of the existing network would no longer need to be incurred, these should not be included in the costing exercise.

4. Asset valuation

If an economic costing exercise of this sort is to be undertaken, how should capital costs be accounted for? There are two options available: historical cost, where assets would be valued at acquisition cost less accumulated depreciation, and depreciated replacement cost, where the assets would be valued at the cost of replacing the asset with one of equivalent vintage and capability at today's prices.

In the postal sector context, this issue is arguably of less importance than in many other sectors as a result of two factors:

– compared with many (regulated) sectors, the postal sector is relatively labour-intensive;
– assets tend to be short-lived and not characterised by significant asset price changes (compared with, for example, assets in the telecoms sector), implying that the difference between the two valuation approaches may not be great.

Nonetheless, to be consistent with the justification that incremental costs are those that would prevail in a competitive market, it would seem appropriate in theory to use the replacement cost standard. This has been recognised in both academic and regulatory/competition law contexts as the standard that most closely matches how assets would be valued in a competitive market. However, it should also be recognised that most businesses' costing systems make use of the historical cost standard for asset valuation. This practical constraint may need to be traded off against the theoretically superior replacement cost approach, taking into account the two considerations noted above.

What to do with common costs?

Incremental costs are accepted as an important concept in regulatory practice and competition law. However, by definition, they exclude common (and joint) costs from the exercise, although the development of economic costing principles may reduce the proportion of total costs that are genuinely considered to be in this category. Therefore, although thinking about costing principles along the lines identified above may lead to an allocation of costs that differs from more conventional accounting approaches, it will not eliminate the problem of costs that are not incremental or decremental to any particular service. The question is how the cost allocation methodology should deal with these costs.

The answer to this question depends on how the cost information is used. For example, in competition investigations of cross-subsidisation or predatory pricing, it is well established that it is purely the incremental cost that is of most relevance. Prices equal to or above average incremental costs imply that the product is covering the costs which its provision causes the company to incur. Only if prices are below this benchmark is the company making losses from the provision of this product—losses that could only be covered through cross-subsidy or by the expectation that prices could be increased at some point in the future (eg, when competitors have been eliminated). This principle was established in the postal sector during the Deutsche Post case. This is explored more fully in the box below.

In a regulatory, price-setting context—where the regulator has duties that extend beyond preventing abuse of dominance—regulators are likely to take a view on the allocation of common costs. A number of approaches could be considered, although ultimately those taken tend to be based on Ramsey pricing (demand-based) principles or non-demand-based approaches. This issue, and its application to the postal sector, was considered in a previous *Agenda* article.[8]

Regardless of the approach taken to the allocation of common costs, potentially the most important conclusion is that developing an approach to cost allocation along incremental principles—as explored above—need not be inconsistent with products sharing in the recovery of the residual common costs.

Empirical results

A recent conference paper reported empirical analysis of this issue, based on data from Royal Mail's costing

The European Commission's Deutsche Post decision

Endorsement of the LRIC approach (and its application to the postal sector) can be found in a 1994 European Commission decision. UPS complained to the Commission that Deutsche Post AG (DPAG) was cross-subsidising its business parcel services with its monopoly in letter mail. Since the allegation was equivalent to that of predation in the mail order parcel services market, the relevant pricing floor that the Commission used in assessing the complaint was deemed to be the LRIC of supplying the mail order parcel service defined as those:

> Costs that are attributable to a specific service … those costs, which are dependent on the volume posted and arise solely as a function of the specific service, [and which] cease to exist if the service at issue is stopped.

To estimate these costs, the Commission considered each step of the delivery process and assessed which costs would no longer be incurred were the mail order parcel services to cease. The conclusions reached by the Commission are outlined below.

- **Collection**. Since mail order parcels were collected directly by Deutsche Post from specific customer premises—rather than being collated by the Post Office Network—the Commission argued that all of these costs were incremental to the mail order parcel service.
- **Sorting**. The Commission argued that the capital costs of setting up 33 inward and outward freight centres could not be attributed to a particular service. However, it did believe that all staffing and equipment costs at the centre were entirely dependent on the volume of parcels conveyed and hence were allocated in direct proportion to the mail order service.
- **Long-distance transport**. Under the Postal Universal Service Ordinance, Deutsche Post is required to deliver 80% of parcels handled in any one working day by the following day. This would be required for counter parcels even if a mail order service were no longer provided. Consequently, the Commission argued that none of the staffing, equipment and capital costs could be attributed to a particular service.
- **Regional and local transport**. The Commission recognised that no longer providing a mail order service would lead to a reduction in volumes, allowing some delivery points to be amalgamated. It argued that this would lead to around 50% of these costs being saved.
- **Delivery**. The Commission distinguished between 'driving' and 'delivery proper', arguing that the time allocated to driving was not service-specific, but that 'delivery proper' was mostly attributable to a specific service.

The approach taken by the Commission in assessing incremental costs sheds light on some of the questions addressed above. For example, the Commission does not appear to have undertaken a detailed modelling exercise in assessing the cost base; neither did it consider network redesign, but it did consider partial network closure and modelled 'volume elimination'.

Source: European Commission (2001), Case COMP/ 35.141, Deutsche Post AG, OJ L 125/27, May 5th.

system.[9] Table 1 shows the differences in unit cost estimates of first- and second-class mail using three approaches to cost allocation, prior to the allocation of common costs:

- an 'unmodified ABC' approach;
- an approach, reflecting Royal Mail's current practice, where certain modifications are made to the ABC model to reflect economic costing principles;
- an approach outside of the ABC model explicitly designed to answer this type of question.

Although these represent preliminary results, it is clear that they imply a greater difference between first- and second-class mail costs than is suggested by Royal Mail's current approach.

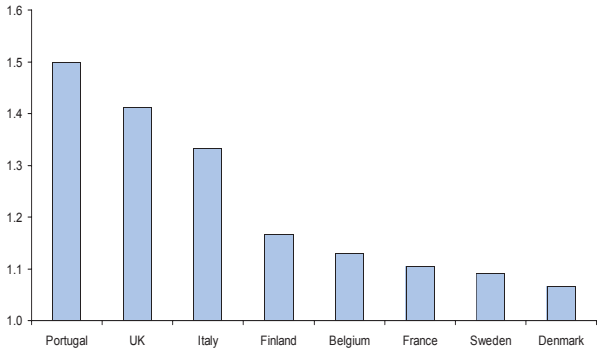
Furthermore, although caution should be exercised in interpreting these results since they represent the average costs of all items of the particular class, and should not be directly related to 'the price of a stamp', if this ratio in costs were reflected in the ratio in single-piece prices, it would imply a greater difference between first- and second-class (single piece) services than is seen in the UK and other European countries, as Figure 1 indicates. The same ratio measure as that presented in the table is used to measure the difference between first- and second-class services.

Table 1 Implications of different costing approaches

	First-class unit cost (p)	Second-class unit cost (p)	Ratio of first class to second class
Simple ABC model	33.8	23.1	1.46
Current status quo	35	22.6	1.55
Greater move towards economic costing	40.5	20.3	2.00

Source: Robinson, R., Ward, J. and Booth, R. (2006), op. cit .

Figure 1 Ratio of priority to non-priority single-piece prices



Source: Postal operators' websites and Oxera calculations.

Conclusions

The economically meaningful allocation of costs will become increasingly important in the liberalised European postal sector. Inappropriate cost allocation will lead to inappropriate price signals and the possibility that efficient entrants will be discouraged while inefficient entrants are encouraged. The conceptually correct approach to cost allocation is reasonably well recognised and understood: the incremental/decremental costs associated with the provision of a particular product. More challenging is the implementation of this approach. However, these challenges are not insurmountable. The results presented in this article suggest that the potential size of the change in costs that could result from adopting a more economic approach to costing could be significant.

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[1] European Commission (1997) Directive 97/67/EC on Common Rules for the Development of the Internal Market of Community Postal Services and the Improvement of Quality of Service, December, and European Commission (2006), 'Proposal for a Directive of the European Parliament and of the Council Amending Directive 97/67/EC Concerning the Full Accomplishment of the Internal Market of Community Postal Services, COM/2006/594, October.

[2] Ofcom (2004), 'Review of the Wholesale Local Access Network', December. The '+' in LRIC+ refers to the approach taken by Ofcom to achieve full cost allocation. This issue is addressed in this article.

[3] This would give identical results if a (sufficiently) long-term perspective were taken.

[4] Ofcom (2004), op. cit.

[5] As Crew and Kleindorfer note, 'From an economic perspective, the key issue in estimating incremental cost is verifying the form of the assumed cost function. Verifying this is difficult, since one typically obtains information only for vectors M for which all products have Mi>0 (and often Mi will be substantially greater than zero.) Using such estimated cost functions to determine what total costs would be with some Mi "zeroed out" is of course problematical.' Crew, M.A. and Kleindorfer, P.R. (2000), 'Cost Estimation and Economically Efficient Prices', in M.A. Crew and P.R. Kleindorfer (eds), *Regulation and the Nature of Postal and Delivery Services*, Boston, MA: Kluwer Academic Publishers.

[6] Ibid.

[7] Bradley, M.D., Colvin, J.L., and Smith, M.A. (1993), 'Measuring Product Costs for Ratemaking: The United States Postal Service', in M.A. Crew and P.R. Kleindorfer (2000), op. cit.

[8] *Agenda* (2005), 'One Size Fits All? Cost Allocation in Postal Services', August. Available at www.oxera.com.

[9] Robinson, R., Ward, J. and Booth, R. (2006), 'Cost Allocation to Support the Pricing of Mails Services', paper presented at 14th Conference on Postal and Delivery Economics, May 31st–June 3rd 2006, Bern, Switzerland