

# Agenda

## Advancing economics in business

### One size fits all? Cost allocation in postal services

**Regulators face difficult challenges in allocating indirect costs such as overheads and network costs. One method of doing so, equi-proportionate mark-up, has recently been adopted in the telecoms sector. Based on this precedent, Postcomm, the UK postal services regulator, has concluded that it is also appropriate for the postal sector. Is this the case?**

Postal service operators, like many other companies, provide a wide variety of products and services, ranging from single letters to bulk pre-sort items. Many of these services share elements of the operator's network and costs, and the allocation of costs to a particular postal service can be difficult. While some costs can be easily identified and traced to an individual product or line of business, others may not, particularly for costs that are joint or common across the different lines of business.<sup>1</sup>

The allocation of joint and common costs (often referred to collectively as indirect costs) poses one of the most difficult challenges to regulators and competition authorities.<sup>2</sup> The European Commission Postal Notice acknowledges the difficulties of allocating costs that are shared by different services.<sup>3</sup> In the context of reserved and non-reserved services, Article 14 of the European Postal Directive states that common costs that cannot be directly assigned to a particular service should be allocated, where possible, on the basis of direct analysis of the origin of the costs themselves.<sup>4</sup>

In the regulatory context, the allocation exercise is crucial to obtaining a pricing structure that replicates a competitive outcome, or that does not distort the

development of competition. The allocation of indirect costs is particularly relevant in the case of the European postal services sector, which is being gradually liberalised and is characterised by the presence of significant fixed costs relating to, among others, the provision of a universal service.

In the UK, Postcomm recently addressed the issue of cost allocation in the context of Royal Mail's proposals to introduce more cost-reflective tariffs, and as part of the price control proposals.<sup>5</sup> An important element of the assessment of cost-reflective tariffs is the method used to allocate those costs not captured in the products' long-run marginal costs (LRMCs). According to Postcomm, an equi-proportionate mark-up (EPMU), which 'allocates the joint costs and overheads to a product in the same proportion as that product's share of total LRMC costs', is 'the most appropriate approach to distributing genuine overheads among products and customers'.<sup>6</sup> Postcomm has looked at alternative approaches, including Ramsey pricing, but they were considered inappropriate for 'a company with a strong monopoly position in the early stages of a developing competitive market'. In selecting a method for distributing these costs, a judgement often has to be made as to which is the most appropriate

#### Principles of cost allocation

<b>Cost causality</b>	<b>Costs should be allocated in accordance with the activities that cause them</b>
<b>Objectivity</b>	<b>Costs should be allocated on an objective basis, without unduly benefiting the regulated company or any other company</b>
<b>Transparency</b>	<b>The allocation method should be transparent</b>
<b>Consistency</b>	<b>The allocation of costs should be consistent with the regulator's objectives (eg, economic efficiency, fairness/distributional considerations) and statutory duties (eg, to further the interest of consumers, ensure the provision of the universal service, etc)</b>
<b>Feasibility</b>	<b>The allocation method should be practical</b>

Source: Adapted from Inter-Regulatory Working Group (2001), 'The Role of Regulatory Accounts in Regulated Industries: A Final Proposals Paper by the Chief Executive of Ofgem, Director General of Telecommunications, Director General of Water Services, Director General of Electricity and Gas Supply (Northern Ireland), Rail Regulator; Civil Aviation Authority, and Postal Services Commission', April.

given the specific circumstances of the industry being analysed. This article considers regulatory precedents for adopting EPMU in the telecoms sector; the context in which these regulatory decisions were made; and the relevance of these precedents for postal services.

## Principles, approaches and precedents

Regulatory best practice suggests a number of guiding principles that a regulator should consider when assessing a particular approach to allocating costs between different products and services supplied by a regulated company. Some of the main principles are summarised in the box above.

In theory, there is no single correct method for cost allocation; the choice of method depends on the circumstances of the sector in question, the underlying reasons for allocating costs, and the regulator’s objectives and duties.

If the reason for allocating indirect costs is to establish cost-reflective tariffs, economic theory would only provide some indications about the boundaries of the costs to be allocated to any services:

- a *floor, given by the incremental cost*—defined as the increase in cost associated with producing a specified increment of output (eg, providing the service in question versus not providing it);
- a *ceiling, given by the stand-alone cost*—the cost that would be incurred were the company to undertake only the line of business in question.

The difference between these boundaries gives the level of joint and common costs. Pricing at incremental cost would imply that the service in question makes no contribution to the indirect costs, while a price equal to the stand-alone costs would mean that all the indirect costs are allocated to that service. The greater the difference between the incremental and the stand-alone costs, the greater the possibility of conflicts and disagreements on how best to allocate indirect costs, and the more important it will be that the approach adopted is consistent with the principles and objectives discussed in the box above.

The box below presents some common approaches to allocating joint and common costs. Significantly, it shows that, according to economic theory, welfare is maximised when indirect costs are allocated in inverse proportion to the product’s price elasticity of demand—a principle called Ramsey pricing.

In the UK mobile call termination inquiry, the Competition Commission looked in detail at the treatment of EPMU and Ramsey pricing.<sup>7</sup> The investigation concerned the charges set by the mobile network operators (MNOs) for terminating calls on their respective networks. Fundamental to the Commission’s approach to assessing allowable call termination charges is the ‘cost-causation principle’, which attributes costs on the basis of who causes or benefits from them. The Commission rejected a Ramsey-based approach, considering it inconsistent with the cost-causation principle. In addition, it argued that:

**Key approaches explained**

Three types of cost driver can be used to allocate indirect costs

<b>Input-based</b>	Costs can be allocated to a product based on other known inputs employed in the production of that product, such as labour employed, floor space used
<b>Output-based</b>	Costs can be allocated using output indicators such as production volumes (eg, traffic)
<b>Value-based</b>	Costs can be allocated based on demand factors, such as revenues or consumers’ willingness to pay. A variant includes allocating costs using the Ramsey principle, which states that it is economically efficient to recover a relatively larger part of indirect costs from those customers whose demand is relatively more inelastic. The efficiency of Ramsey pricing lies in the fact that it generally leads to higher total output, and hence generates higher surpluses for consumers

**EPMU** EPMU can take input- and output-based drivers into account. The mark-up for indirect costs is applied across all products based on the direct costs of each product. For example, if £50m of indirect costs had to be allocated across two products, with £40m and £60m of direct costs respectively, £20m would be allocated to the first product (ie,  $40 / \{40 + 60\}$ ), and £30m to the other product (ie,  $60 / \{40 / 60\}$ ). That is, a mark-up of 50% would apply to each product. Unlike approaches using value-based drivers, such as Ramsey pricing, EPMU does not directly consider consumers’ willingness to pay and other demand-side factors

Source: Office of Fair Trading (2003), 'Assessing Profitability in Competition Policy Analysis', report prepared by Oxera, July, available at [www.oxera.com](http://www.oxera.com).

- setting Ramsey-based termination charges would require retail prices to be set at Ramsey levels (ie, Ramsey pricing is about a structure of pricing);
- it would be difficult to obtain reliable estimates of the elasticities of demand, as reflected in the lack of consensus regarding the correct values for the different elasticities;
- a regulated price based on Ramsey principles could lead to distributional inequities.<sup>8</sup>

The Commission also considered EPMU as an alternative basis on which to allocate the fixed and common costs of the MNOs. It acknowledged that EPMU would be equivalent to Ramsey pricing if all the super-elasticities of the products in question were equal.<sup>9</sup> Therefore, if the elasticities of the different services do not show large differences, the error in using EPMU rather than Ramsey prices would be small, especially if fixed and common costs are small.

Strictly speaking, the cost-causality approach adopted by the Commission was not EPMU, although it led to similar answers. Indeed, the Commission stated that:

EPMU is not consistent with our preferred approach (that is, that termination charges should reflect the costs caused by the calling party) and, in this sense, it seems to us to be somewhat arbitrary.

The determination of the appropriate mark-up was influenced by the Commission's modelling, which was partly based on a long-run incremental cost model. In this model, almost all costs were judged to be incremental, and therefore the proportion of fixed and common costs to be recovered from a mark-up was small. As a result, in the context of the mobile call termination charges, any shift from the (Ramsey) welfare-maximising outcome through use of this approach—which, it was acknowledged, gave similar answers to EPMU—would have been modest.

More recently, Ofcom, the UK telecommunications and media regulator, set the target charges for 2G mobile voice call termination on the basis of long-run incremental cost plus a mark-up for common costs, according to the EPMU approach.<sup>10</sup> It is important to understand the context in which Ofcom has opted for an EPMU. The regulator acknowledged that EPMU is not theoretically more efficient than Ramsey. However, given the limited size of the common costs and the difficulties of setting efficient mark-ups, the use of EPMU would achieve a more appropriate balance between practicality and efficiency than the Ramsey approach.

## One size does not fit all

For various reasons discussed below, the rationale for using EPMU is not necessarily applicable to postal

services. Indeed, the rationale and arguments for adopting an EPMU allocation approach put forward by the Competition Commission and Ofcom are not necessarily applicable to the postal services sector.

### Structure of prices

As mentioned above, the Competition Commission considered that a correct application of the Ramsey approach would require consideration of the whole set of prices of all mobile services, and not just call termination. According to Oftel, the former UK telecommunications regulator, the MNOs did not have any incentives to set Ramsey-based prices for retail services. Given that the regulator did not intend to regulate the mobile retail market, there would be a risk that setting Ramsey termination charges would not maximise social welfare. In contrast, prices of postal services are generally subject to scrutiny by the authorities. In the UK, for example, the revenues from the price-controlled services amount to around 90% of Royal Mail's total revenue from inland and international mail,<sup>11</sup> and the concern of the telecoms regulator (and the Competition Commission) that companies, absent of regulation, would not seek to set Ramsey prices for their entire portfolio of products and services, is less likely to hold.

### Demand elasticities

Examination of the demand elasticities of the different products in question could provide an understanding of the extent of any distortion that may occur as a result of adopting an EPMU approach rather than a welfare-maximising approach. If the elasticities of the different products do not show large differences, the efficiency distortions in using the EPMU approach may be small (assuming, in addition, that the proportion of common costs to be recovered is small). Indeed, as pointed out by the Competition Commission, the EPMU would be equivalent to a demand-based approach of cost allocation such as Ramsey when all the super-elasticities of the different products in question are equal.

In the UK mobiles case, the Competition Commission and the telecoms regulator considered that the estimates of demand elasticities were not sufficiently reliable to justify the adoption of a demand-based approach to cost allocation. Unlike the mobile telephony sector, in the postal services sector there appears to be a broader consensus with regard to the relativities of the elasticities of postal services, suggesting that the elasticities of the different products, such as public tariff and pre-sort services, or first- and second-class mail, are unlikely to be similar.<sup>12</sup> Therefore, any distortions that may occur as a result of adopting EPMU are unlikely to be negligible, and likely to be against the principle of objectivity.

The discrepancies that would result from assuming equal demand elasticities for the products in question may be more significant the greater the degree of entry faced by

the universal service provider. This is because by allocating the same proportion of costs to price-elastic products as to less price-elastic products, EPMU may distort the price signals given to entrants. As a result, inefficient entry may occur as entrants would cream-skin those more profitable segments of the markets (where the use of EPMU has resulted in higher prices of the universal service provider), leaving the universal service provider to service the less profitable market segments.

In this scenario, if the aim of the regulator is to promote economic efficiency while at the same time ensuring the financial viability of the regulated universal service provider, EPMU would not be the answer. The distortion introduced by EPMU may induce inefficient entry and fail to ensure the financial viability of the universal service obligation (USO).<sup>13</sup>

### Size of the indirect costs

The impact of adopting a particular approach to allocating indirect costs cannot be isolated from the size of the common costs that are to be recovered through a mark-up, as mentioned above.

In the mobiles case, the regulator determined that the proportion of genuine fixed and common costs to be recovered through the mark-up was small.<sup>14</sup> Therefore, the issue of how the mark-ups are set may be of less importance than in a sector where common costs are large. Indeed, Ofcom's endorsement of EPMU was one of striking a balance between the principles of feasibility (ie, practicality) and achieving efficiency objectives, given the limited size of common costs and the difficulties of setting efficient mark-ups. As a consequence, any distortion of economic efficiency that would result from adopting an EPMU would be relatively modest.

However, in the postal services sector, a key issue for the approach to cost allocation is the presence of significant indirect costs, which can be related to the provision of the USO. For example, in the UK, Royal

Mail's costing and contribution system attributes 53% of total costs to specific products, which leaves 47% of costs to be allocated—this is appreciably higher than the costs recovered through the mark-up in the mobile sector.<sup>15</sup> In this context, where common costs are significant, if demand sensitivities differ between postal services, an EPMU may produce a less efficient outcome than a welfare-maximising approach. As a result, an approach that has regard to the impact of prices or demand may warrant further consideration by the regulator.

## Conclusions

The relevance of a particular method of allocating indirect costs depends on the particular context of the industry in which the approach is intended to be applied, and on the regulator's objectives and duties. If the costs to be recovered through a mark-up are small, and if demand elasticities for the services in question are similar, EPMU is likely to be an acceptable approach. However, where common costs are significant, and demand elasticities differ between products, as generally evidenced in the postal services sector, the EPMU approach could be less appropriate.

The adoption of alternative approaches to cost allocation and pricing rules when setting a price control cannot be taken in isolation from the market conditions in which the universal service provider operates, or from the regulator's statutory duties. Given the opening of the European postal markets, and the need to ensure the provision of the universal service, it is important that the cost allocation rules concur with the objectivity principle by not distorting price signals, which may then promote inefficient entry. In this sense, if the market condition is such that the USO includes an obligation to maintain geographically averaged prices, and to fund the USO through cross-subsidies by the universal service provider, it is important to identify a range of cost allocation and pricing rules that would allow the universal service provider to recover its costs and earn a return.

- <sup>1</sup> Joint costs are incurred when production facilities simultaneously produce two or more products in fixed proportions, such that an increase in the output of one product will necessarily mean a corresponding increase in the output of the other product. In contrast to joint costs, common costs can vary to some degree with the quantity of production of each product, even though they are not directly attributable to a single product.
- <sup>2</sup> The difficulties in allocating costs are illustrated in a recent dispute between Finland Post Corporation and the Finnish regulator in relation to the pricing of the universal services. See, for example, Karlsson, P. (2005), 'The Cost of USO and the Pricing of Postal Services: The Experiences of Finland Post', paper presented at the 13th Conference on Postal and Delivery Economics, Antwerp, Belgium, June 1st–4th.
- <sup>3</sup> 'Notice from the Commission on the application of the competition rules to the postal sector and on the assessment of certain state measures relating to postal services', OJ C 39/2, 6.2.98.
- <sup>4</sup> Directive 97/67/EC, OJ L 15, 21.1.98.
- <sup>5</sup> See Postcomm (2005), 'Royal Mail's Revised Proposals for Size-based Pricing ("Pricing in Proportion")', consultation document, April; Postcomm (2005), '2006 Royal Mail Price and Service Quality Review', initial proposals, June.
- <sup>6</sup> Postcomm (2005), 'Royal Mail's Revised Proposals for Size-Based Pricing ("Pricing in Proportion")', consultation document, April, para 4.5.
- <sup>7</sup> Competition Commission (2003), 'Vodafone, O2, Orange and T-Mobile'.
- <sup>8</sup> In the mobile case, the distributional unfairness would be that 'fixed-to-mobile and off-net callers, whose demand is thought to be relatively price-inelastic, would pay prices for mobile call termination well in excess of the costs which their calling activity causes the MNOs to incur'. See Competition Commission (2003), *op. cit.*, para 2.510.
- <sup>9</sup> Super-elasticities are modified-demand elasticities that account for complementarity and substitution among products. That is, the super-elasticity of a product encompasses that product's own- and cross-price elasticities. If the demand for the product in question is independent, the super-elasticity of that product is equal to its ordinary demand elasticity.
- <sup>10</sup> Ofcom (2004), 'Wholesale Mobile Voice Call Termination', statement, June 1st.
- <sup>11</sup> Based on 2003/04 figures.
- <sup>12</sup> Several papers have found that pre-sort/bulk products are more responsive to price than public tariff/single-piece products, and first-class mail is generally more elastic than second-class mail. See, for example, Nankervis, J., Richard, S., Soteri, S. and Rodriguez, F. (2002), 'Disaggregated Letter Traffic Demand in the UK'; Florens, J.-P., Marcy, S. and Toledano, J. (2002), 'Mail Demand in the Long and Short Term', in M. Crew and P. Kleindorfer (eds), *Postal and Delivery Services: Pricing, Productivity, Regulation and Strategy*, Boston, MA: Kluwer Academic Publishers; and De Rycke, M., Marcy, S. and Florens, J.-P. (2001), 'Mail Use by Firms', in M. Crew and P. Kleindorfer, *Future Directions in Postal Reform*, Boston, MA: Kluwer Academic Publishers.
- <sup>13</sup> There is some academic literature that addresses the impact of inefficient entry and cream-skimming on the universal postal provider. See, for example, Crew, M. and Kleindorfer, P. (2000), 'Liberalization and the Universal Service Obligation in Postal Services', in M. Crew and P. Kleindorfer (eds), *Current Directions in Postal Reform*, Boston, MA: Kluwer Academic Publishers.
- <sup>14</sup> For example, Ofcom allowed an EPMU for network common costs of around 5% of total network costs. With regard to non-network common costs, around 7% of average network costs were allowed to be recovered through an EPMU. See Ofcom (2004), *op. cit.*
- <sup>15</sup> Postcomm (2004), 'Royal Mail's Proposal to Introduce Size Based Pricing: A Consultation Document', April, para 4.45.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email [d\\_holt@oxera.co.uk](mailto:d_holt@oxera.co.uk)

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