Compensation for the Net Extra Costs of Public Service Obligations: Complexity and Pitfalls

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Introduction

The calculation of the compensation to be offered to providers of services of general economic interest [SGEI] is always a difficult and complex process. In order to be able to calculate the amount of compensation, it is first necessary to identify the relevant costs and revenues. These costs and revenues are those directly linked to the SGEI or the public service obligation [PSO].[1] This implies that before it is possible to count costs and revenues, it is essential to establish whether such costs and revenues are linked to a genuine SGEI or PSO.

The purpose of this paper is twofold. First, it examines recent case law of EU courts and the decisional practice of the European Commission on methods of public service compensation [PSC] which are compatible with the internal market.

Secondly, it shows, with the use of simple numerical examples, how SGEI providers may exploit the system in order to secure larger subsidies. Certainly, the calculation of the correct amount of compensation is a complex process that needs to take into account how market operators may react to the fact that they can be compensated for the costs of PSO imposed on them. At first sight, such compensation appears to merely offset costs they would not normally bear. However, it will be shown that such costs may be exaggerated.

The review of case law and Commission practice leads to the following findings. First, in order to calculate the compensation properly, the public authority that imposes the PSO must start with the correct definition of the obligation itself. Correct definition leads to correct identification of eligible costs.

Secondly, despite the fact that the case law acknowledges that Member States are free to define SGEI, the services they classify as SGEI must be those which are not provided or satisfactorily provided by the market. Therefore, it is necessary to carry out a market survey or analysis to establish what the market fails to supply or offer at the required level of quality and affordable price.

Thirdly, the providers of SGEI must be entrusted with specific tasks. This act of entrustment has economic and legal consequences that go beyond the signing of a contract between a public authority and one or more undertakings. In practice, it means that SGEI providers are compelled to offer a well-defined service whose costs cannot be avoided and therefore they can be quantified later on for the purpose of calculating the amount of required compensation.

Fourthly, the parameters of compensation must be determined in advance. Public authorities need to define the method or formula on the basis of which the compensation will eventually be calculated. In practice, this lays down another ceiling on the maximum amount of compensation that can be granted. It also precludes ex post allocation of costs and revenue between different services which may or may not fall within the SGEI scope.

Fifthly, Member States need to ensure that the providers of SGEI are not over-compensated. In this respect, Member States are free to bundle together profitable with unprofitable segments of the market or related services, but in all cases they must be in a position to identify the costs and revenue which correspond to the defined SGEI or entrusted PSO.

The article starts first with three clarifications concerning the distinction between the Altmark criteria and the criteria for compatibility of state aid granted in the form of PSC. Then it considers the relationship between SGEI and market failure and identifies the conditions that must be satisfied in order for PSC to be compatible with the internal market. In the last section a number of numerical examples are presented which demonstrate the pitfalls of calculating the correct amount of compensation.

Clarifications: (i) Altmark v market economy investor principle; (ii) Altmark v compatible state aid; (iii) Altmark v article 106(2) TFEU

Before proceeding to examine how the PSC may be calculated it is instructive to make several important clarifications. As is well-known from the *Altmark* judgment,[2] PSC that satisfies the four criteria laid down by the Court of Justice does not constitute state aid in the meaning of art.107(1) TFEU.

It is also possible that financial contribution by a public authority may not constitute state aid either if it conforms with the market economy investor principle [MEIP] or the synonymous market economy operator test [MEOT]. In both cases, transfer of state resources fall outside the scope of art.107(1).

[1] Following the judgment of the General Court in *British United Provident Association Ltd (BUPA) v Commission of the European Communities* (T-289/03) [2008] E.C.R. II-81, I consider that SGEI is interchangeable with PSO.
[2] *Altmark Trans GmbH v Nahverkehrsgesellschaft Altmark GmbH* (C-280/00) [2003] E.C.R. I-7747.

Recently the Commission had occasion to explain the important difference between payments that satisfy the Altmark criteria and financial contributions that conform with the MEIP or MEOT.

In its Decision in case SA.32014 concerning PSC for the Sardinian ferry company Saremar, the Commission explained that

> "it is necessary to distinguish between application of the MEIP test and the fulfilment of the Altmark criteria. While both tests serve to assess the existence of an advantage for the beneficiary, they clearly refer to the different roles that public authorities can take when adopting financial measures in favour of a given undertaking. The MEIP applies when the public authorities act in their role of shareholders (i.e. in the first place with a view to obtain a profit from the operation), whilst Altmark is relevant when the public authorities pursue public interest objectives, which are not typical of a private operator (i.e. the perspective to make a profit is of secondary importance, if any)." ([168])

The Commission also stressed that a measure could only be MEIP-compliant if it were based on sound viability perspectives for the beneficiary. No ex ante business plan had been prepared in the case of Saremar. Since the compensation could not be ascribed to the state acting as shareholder, it did not conform with the MEIP.

A second issue that needs to be clarified is the difference between compensation that complies with the Altmark criteria and compensation that is state aid but is compatible with the internal market. Obviously, the primary difference is the existence of state aid.

Close reading of the Commission Decision 2012/21[3] exempting PSC from notification and the Commission Communication on the EU Framework for notification of PSC[4] indicates that PSC is deemed to be compatible with the internal market when it satisfies the first three Altmark criteria: (i) definition of a genuine SGEI and entrustment through an act of a public authority; (ii) ex ante establishment of parameters of compensation; and (iii) compensation many not exceed the net extra costs of PSO. It follows that the difference between Altmark-compatible compensation and compensation of compatible state aid is, in the case of the latter, the non-compliance with the fourth Altmark criterion: selection via a competitive procedure or that the chosen operator is efficient by industry standards.

One would have thought that the requirements for payments that do not constitute state aid would be more stringent than the requirements for payments that do constitute state aid. However, as shown later on, this belief is wrong because the Commission Decision and especially the Framework on PSC contain several additional requirements which are not mentioned in the *Altmark* judgment of the Court of Justice, as for example, the limitation of eligible costs to the net avoidable costs, the limitation of reasonable profit to the swap rate plus 1 per cent and the imposition of efficiency requirements on SGEI providers.

A third question that often arises is the relationship between the Altmark criteria and the criteria in art.106(2) TFEU. The General Court has confirmed that the first three Altmark criteria coincide with the criteria of exemption in art.106(2). In the Brussels hospitals case, the General Court explained that "the fourth Altmark criterion is not taken into account for assessing the compatibility of aid measures under Article 106(2)".[5]

In a later judgment, the General Court elaborated that although the economic efficiency of the SGEI provider is a factor that must be taken into account in the fourth Altmark criterion, it has no "pertinence" or relevance in the assessment of the compatibility of compensation on the basis of art.106(2).[6] According to the General Court, the exception in art.106(2) allows Member States to choose the providers of SGEI. The requirement of proportionality of the aid aims to prevent SGEI providers from receiving funding that exceeds the net extra costs of the SGEI.

What constitutes a genuine SGEI?

The Court of Justice and the General Court have stipulated in several seminal cases that SGEIs are services that exhibit "special characteristics" as compared with those of other economic activities.[7] Although, however, they have referred to such issues as universal provision of SGEI they have not specified in an exhaustive manner what those special characteristics may be. It is up to Member States to define what they consider as SGEI and justify why they consider certain services as SGEI.

Even though we do not have a comprehensive definition, in several cases EU courts have defined essential elements that must be present in any SGEI. These elements are: (i) failure of the market to supply the desired service [at satisfactory price, quality, terms, or geographic coverage][8], [9]; (ii) the service is provided to

[3] Commission Decision 2012/21 [2012] OJ L7/3, January 11, 2012.
[4] Commission Communication on the EU Framework for notification of PSC [2012] OJ C8/3 January 11, 2012.
[5] *Coordination bruxelloise d'institutions sociales et de sante (CBI) v European Commission* (T-137/10), judgment of November 7, 2012, not yet reported, at [192].
[6] *Télévision française 1 (TF1) v European Commission* (T-275/11), judgment of October 16, 2013, not yet reported, at [130].
[7] See, *Merci Convenzionali Porto di Genova SpA v Siderurgica Gabriella SpA* (C-179/90) [1991] E.C.R. I-5889; *GT Link A/S v De Danske Statsbaner (DSB)* (C-242/95) [1997] E.C.R. I-4449; *Corsica Ferries France SA v Gruppo Antichi Ormeggiatori del Porto di Genova Coop arl* (C-266/96) [1998] E.C.R. I-3949; *BUPA* [2008] E.C.R. II-81.
[8] *Asociación Profesional de Empresas Navieras de Líneas Regulares (ANALIR) v Administración General del Estado* (C-205/99) [2001] E.C.R. I-1271.
[9] *Colt Telecommunications France v European Commission* (T-79/10), judgment of September 16, 2013, not yet reported.

all those who are deemed to need the service (universality)[10]; and (iii) the provider is compelled to supply the desired service.[11]

Very recently, in *Colt Telecom v European Commission*, the General Court explicitly stated that the existence of a market failure is a prerequisite for qualifying an activity as an SGEI.[12] The Court then went on to note that market failure is an "objective concept" that depends on the factual situation in the market.[13]

In this particular case, the issue at hand was the imposition of PSO on broadband providers in the greater Paris area which is one of the most network places in Europe. The French authorities argued that areas of high coverage were adjacent to areas of low coverage and bundled together areas of different coverage. The General Court accepted that the coverage of profitable areas did not necessarily mean that the aid was excessive, since it was a source of income that could be used to finance coverage of the unprofitable areas and thus to reduce the amount of the aid.[14]

It is now obvious that the inability or unwillingness of the market to supply the desired service is critical in the classification of a service as a SGEI. The Commission Communication on compensation for SGEI is explicit on this point. Accordingly, it follows from art.106(2) TFEU that

> "undertakings entrusted with operation of SGEIs are undertakings entrusted with 'a particular task'. The entrustment of a 'particular public service task' implies the supply of services which, if it were considering its own commercial interest, an undertaking would not assume or would not assume to the same extent or under the same conditions."[15]

Similarly the EU Framework explains that:

> "Member States cannot attach specific PSO to services that are already provided or can be provided satisfactorily and under conditions, such as price, objective quality characteristics, continuity and access to the service, consistent with the public interest, as defined by the State, by undertakings operating under normal market conditions."[16]

Therefore, the first step in calculating any compensation is in determining whether the service in question is already supplied or can be supplied by the market at a satisfactory price, quality or other desired terms.

Under-provision by the market

Recent decisional practice of the Commission offers useful guidance on how to determine whether the market fails to supply the service in question.

In the *Saremar* case mentioned above the Commission accepted that although the operation of the routes between Sardinia and mainland Italy was not explicitly described as an SGEI, it could in principle be considered to be an SGEI because the entrustment acts referred to affordability of fares as a general pre-requisite of operation. But then in order to verify the existence of the PSOs entrusted to Saremar and whether it was necessary to compensate the latter for the supplementary costs incurred in meeting those obligations, the Commission examined:

(a) first, whether the service was inadequate, had its provision been left to the market forces alone in the light of the public service requirement concerning affordable fares; and
(b) secondly, whether the operator was indeed entrusted with public service obligations which were clearly defined.

We see in this case a perfect application of the two fundamental features of an SGEI: (i) under-provision by the market; and (ii) compulsion of market operators to offer the service.

The Commission found that at least during the summer months, demand was high enough and that the market could provide the required services. Moreover, the fares charged by Saremar were comparable and some times higher than those charged by other companies. During the winter season, the services were not disrupted and again the fares charged were nor dissimilar to those charged by competitors. The Commission noted that the entrustment acts did not impose other PSOs as concerns the frequency, capacity, or regularity of the (mixed) services offered by Saremar. Therefore, the market did not appear to fail to supply the service.

With respect to whether Saremar was entrusted with clearly defined PSOs, the Commission noted that the precise routes to be operated were not chosen by the Sardinian authorities but rather left at the discretion of the operator. No specific obligation to charge reduced fares on the designated routes was imposed on Saremar. Although a 15 per cent discount applied to Sardinian residents, there was no specification of the precise level of fares to be charged by Saremar.

In the end the Commission found that

> "a large discretion has been left to Saremar to adapt fares. Saremar retained the faculty to adjust fares so as to ensure economic viability of the activity and customer satisfaction. The Commission notes that SGEIs are by nature services which address market failures as the market does not autonomously provide them to the standard required by the public authority.

[10] *BUPA* [2008] E.C.R. II-81.
[11] *BUPA* [2008] E.C.R. II-81.
[12] *Colt Telecommunications France* (T-79/10) at [154].
[13] *Colt Telecommunications France* (T-79/10) at [158].
[14] *Colt Telecommunications France* (T-79/10) at [186].
[15] *Colt Telecommunications France* (T-79/10) at [47].
[16] *Colt Telecommunications France* (T-79/10) at [13].

> Whilst the Commission considers that some flexibility with regard to prices may be left in some cases to public service providers, when the alleged public service obligation relates precisely to the necessity to offer affordable fares, the public authorities must define the maximum fares that the operator can apply or link that flexibility either to objective criteria, which allow to determine with a reasonable degree of certainty what fare level is to be considered as affordable, or to a prior authorisation procedure by the entrusting authority."[17]

> "In the present case, however, the provisions concerning applicable fares in the entrustment acts are not sufficiently precise so as to qualify as clearly defined PSOs …. Saremar's margin of manoeuvre was not linked to objective criteria or at least to criteria that were applied in an objective way."[18]

On the basis of the above findings, the Commission inevitably concluded that the service provided by Saremar was no SGEI and that no PSO obligation was imposed on Saremar that could justify compensation.

A related case concerning transport between the island of Corsica and mainland France was subject of Commission Decision 2013/435.[19] It assessed aid granted by France to Société Nationale Maritime Corse-Méditerranée. The Commission examined whether the scope of the public service as defined by the public service delegation contract was necessary and proportionate to a "real public service need", manifested by shortage of regular transport services in a situation of free competition. The Commission considered that the scope of the public service remit as defined by a public service contract had to be necessary and proportionate to a real public service need, as demonstrated by the "lack of regular transport services under normal market conditions".[20]

The Commission accepted that it would be legitimate, in circumstances where transport demand showed a marked seasonality, to include services for both peak and off-peak periods within the public service remit. On the basis of these considerations, the Commission made a distinction between "basic" and "additional" services. Additional services were also offered by other market operators. The approach of the Commission was that additional services could be included in the public service remit if it could be determined that they were "essential to the basic service, on the grounds of a set of technical and economic considerations."[21] In certain circumstances, extending the scope of the public service may be justified in the presence of well-established complementary technical or economic efficiency considerations (synergies).

After thorough market analysis the Commission concluded that the operation of the additional services did not seem to be indispensable to the basic service. There was no technical complementarity between the basic service and the additional service.

The Commission stated

> "that Member States may not impose specific public service obligations for services that are already provided or can be provided satisfactorily in conditions (price, objective quality features, continuity and access to the service) that are compatible with the public interest, as defined by the State, by companies operating under normal market conditions."[22]

Although it rejected the claim that the additional services were not adequately provided by the market [in fact there was substitutability between the additional services and other services provided by market operators], the Commission accepted that the basic services could indeed be classified as SGEI because they ensured "a minimum territorial continuity" between mainland France and Corsica. There was clearly under-provision by the market during the winter months of low tourism. The Commission considered

> "that the shortage of private initiative on each line in relation to a clearly identified need for transport during the off-peak periods of the year alone is sufficient to justify the inclusion of the basic service within the scope of the public service for the whole year for all these lines."[23]

More recently, the Commission, in Decision SA.34155 concerning compensation of school bus transport in Rhineland-Palatinate, Germany, accepted that the German authorities had identified a genuine SGEI by imposing a PSO on all bus and tram undertakings in the Land Rhineland-Palatinate. The PSO obliged them to offer reduced rates to students amounting to at least 15 per cent of the standard rate for adults. In this case the market provided all the required services but not at an affordable price for students.

In conclusion, we see that SGEIs do not have to comprise services that are not provided at all by the market. In the *Corsica* case, the SGEI covered only basic services. In the *Sardinia* case, the SGEI could in principle cover services in a specific time period [winter] or at specific price level [affordable]. In the *Paris broadband* case, the SGEI was a bundle of different geographic areas.

[17] *Colt Telecommunications France* (T-79/10) at [214].
[18] *Colt Telecommunications France* (T-79/10) at [215].
[19] Commission Decision 2013/435 [2013] OJ L220/20, August 18, 2013.
[20] Commission Decision 2013/435 [2013] OJ L220/20, August 18, 2013, para.136.
[21] Commission Decision 2013/435 [2013] OJ L220/20, August 18, 2013, para.139.
[22] Commission Decision 2013/435 [2013] OJ L220/20, August 18, 2013, para.166.
[23] Commission Decision 2013/435 [2013] OJ L220/20, August 18, 2013, para.147.

Lastly, in the *Rhineland-Palatinate* case, the SGEI was the provision of the same service as that already offered by the market but at a 15 per cent discount.

Pre-determined parameters of compensation and no over-compensation

In the *Saremar* case the Commission found that there was no explicit reference to any compensation to be granted to Saremar. Moreover, Saremar was given a margin of manoeuvre to adjust its fares precisely in order to break-even. For these two reasons the Commission concluded that the parameters for the calculation of compensation were not established in advance in an objective and transparent manner. The Commission also rejected a compensation mechanism that was developed ex-post.

Because Saremar was not entrusted with an obligation clearly defining the level of fares that were considered as affordable, it was impossible to define parameters of compensation. This is because the parameters for calculating the compensation for the discharge of PSOs concerning affordable fares must necessarily be linked to the level of fares considered affordable. Since that level was not clearly defined, the parameters for calculating the compensation could not be considered as established in advance in an objective and transparent manner.

Given that the Commission already concluded that the Sardinian authorities did not demonstrate the existence of a real public service need, it considered that Saremar was not entitled to receive any compensation.

The Italian authorities responded that the compensation was lower than the loss incurred by Saremar in serving the routes between Sardinia and the mainland and that it had been calculated according to the separate accounts for those routes. Therefore, compensation could not benefit any other activity of Saremar. The Commission rejected this argument on the grounds that in the absence of a clear definition of the obligations imposed on Saremar it was impossible to calculate the costs ensuing from those obligations.

In its Decision 2014/201 on compensation that was to be paid to the Italian bus company Simet for public transport services, the Commission also examined in detail whether parameters of compensation has been objectively defined in advance and whether over-compensation could be avoided.[24] Simet was a private company providing scheduled passenger transport services by bus based on concessions granted by the Italian authorities. In addition to these services, which accounted for approximately two-thirds of its revenue, Simet also provided other services, including international travel services, tourism services and bus hire with driver, which accounted for the remaining third of its revenue.

Simet, like other providers of inter-regional scheduled bus services in Italy, operated on the basis of licences (concessions) which were renewed annually at the request of the company. Those concessions gave the company the exclusive right to provide the relevant services. The fares proposed by the company itself were also reflected in the annual concession specifications defined by the Ministry for Infrastructure and Transport.

The Commission considered that no parameters were ever established in advance in an objective and transparent manner.[25] This meant that compensation calculations were necessarily based solely on ex post estimates of the net costs. In the absence of compensation parameters laid down in advance, any cost allocation would necessarily be conducted ex post on the basis of arbitrary assumptions.

Simet did not apply proper account separation. Consequently, it was impossible to demonstrate that compensation did not exceed the amount corresponding to the net financial effect of the public service obligation on the costs and revenues of Simet.

More importantly, the Commission did not accept the derived (ex post) costs which were based on the assumption that in each year all services provided by Simet had to bear costs which were in the same proportion as their revenues. An ex post calculation would "necessarily result in full compensation of the costs incurred in the provision of the service".

With respect to ensuring that there is no over-compensation, the Commission demonstrated how this should be done properly in its decision concerning the tariff reduction for transportation of students in the Land Rhineland-Palatinate. Germany imposed two ceilings on the maximum amount of compensation: (i) the amount could not exceed the difference between the normal ticket price for adults and the 15 per cent lower price for students multiplied by the number of student passengers; and (ii) the amount could not exceed the net costs, if any, of transporting students.

This case demonstrates two important aspects of compensation. First, a PSO does not necessarily result in net losses for the undertakings on which the PSO is imposed. The mere fact that bus and tram operators in Land Rhineland-Palatinate had to price student tickets at a 15 per cent discount did not mean that they actually suffered losses. It could only mean that their profits per ticket were reduced, but not to an extent that would make it financially impossible for them to operate the service in question. Secondly, irrespective of the specific method that each Member State uses to calculate the amount of compensation, it must be ensured at all times that the third Altmark criterion and the corresponding requirements in the 2012 SGEI package [i.e. the Commission Decision and the EU Framework] are respected. Compensation may not exceed the extra net costs of the PSO.

[24] Decision 2014/201 [2014] OJ L114/48, April 16, 2014.
[25] Decision 2014/201 [2014] OJ L114/48, April 16, 2014, para.93.

The complexity and pitfalls of calculating the correct amount of compensation

The purpose of this section to demonstrate that the calculation of the correct amount of compensation is not a simple exercise of counting costs and revenue. The case of student transport in the Land of Rhineland-Palatinate is used to illustrate the complexity and pitfalls of making the correct calculation. This difficulty in making the correct calculation lies not only in identifying true costs but also in taking into account the reaction of beneficiaries.

As mentioned earlier, the Commission considered in that case that a 15 per cent discount on adult tickets was an SGEI [SA.34155]. The German authorities imposed two ceilings to the maximum amount of compensation and applied the ceiling that resulted in a lower amount, as follows:

> Cap 1: Compensation = (price of adult ticket - price of student ticket) x number of student tickets.
> Cap 2: Compensation = costs + reasonable profit - revenue.

The Commission seems to have assumed that the market would not voluntarily offer discounts to students and considered that the imposition of the obligation on bus companies to grant a 15 per cent discount filled a market gap. Below, case I presents an example whereby bus companies would voluntarily offer discounts. PSC would be unnecessary. Case II presents a counter-example whereby bus companies would not voluntarily offer discounts. But as shown, even in this case, aid may be unnecessary. Case III considers how bus operators may adjust their costs to exploit the system of compensation.

Case I: Bus operators voluntarily offer discounts

The following example shows that a bus company may voluntarily offer discounts to groups of passengers with high elasticity of demand in order to attract them and in the process increase its profitability. In this case, the granting of state aid may be unnecessary.

Assume that a bus can carry 50 passengers and therefore a bus company incurs the following costs per bus per route per trip:

> Variable costs [VC] = 300
> Fixed costs [FC] = 150
> Cost of capital (or required profit) [π] = 5% of capital employed. It is assumed that the fixed costs, FC, correspond to capital employed [e.g. busses, depot]. In fact this assumption is likely to exaggerate the amount of capital employed. In our example, FC is 150 and therefore, the required remuneration of capital is 5% of 150 which is 7.5.
> Total costs [TC] = 457.5

With these costs, the company breaks even by charging a price of 9.15 per passenger [= 457.5/50]. The VC per passenger are constant at 6 [300/50] which implies that the 50 passengers must pay an additional 3.15 per ticket in order to fully cover the fixed costs of 150 plus required capital remuneration. That is, the price of a ticket is 9.15 = 6 + 3.15.

However, assume that at a price of 9, the company can attract only 30 adults whose reservation price is, say, 11 [= it is the highest price they are willing to pay]. But if the bus attracts only 30 passengers, the company will have to charge a price of 15.25 [= 457.5/30] to break even. However, at this high price passengers would rather use cars or bicycles.

If the reservation price of students is 8.5 [= it is the highest price they or their parents are willing to pay], the company can do the following. It can charge 10 to adults and 8.5 to students, which corresponds to 15% discount. Total revenue will be:

> Revenue from adults [Ra] = 300 [= 10 x 30]
> Revenue from students [Rs] = 170 [= 8.5 x 20]
> Total revenue [Rt] = 470

The company, by differentiating its prices, succeeds to attract more passengers, cover its costs and on top of that make a profit of 12.5 in excess of that required for remuneration of capital [12.5 = 470 - 457.5].

But before the company offers the discount to students, the state imposes a PSO on it to transport students at a lower price. Under Cap 1, the PSC for the cost of the PSO is the difference between the adult price and the discounted price for students; i.e.

> Cap 1: PSC = 20 x (10 - 8.5) = 30

However, as explained earlier, Germany established a double cap for the PSC. The first cap was the difference in prices while the second cap was the difference in costs. The PSC could not exceed the net costs of the PSO which is the net cost of the carrying of students.

The portion of the fixed costs that can be allocated to the carrying of students can be derived by multiplying total FC by the share of the students in total passengers; i.e. 20/50 = 40%. Therefore the net costs of carrying students are [the costs and revenue of the carrying of adults must be excluded because they are outside the scope of the PSO]:

> Cap 2: NCs = Vs + (40% x FC) - Rs = (6 x 20) + 60 - (8.5 x 20) = 180 - 170 = 10

To this outcome we must add "reasonable profit" for the remuneration of capital used in the provision of the SGEI. Let's assume that the proportion of capital that can be allocated to student transport is the same as for the allotted FC which is 40% of 150, i.e. 60. Therefore, 5% of 60 is 3. Hence, the compensation under Cap 2 is 13 [= 10 + 3].

Under the double cap system, the PSC that is actually granted may not exceed the lower of the two caps [30 or 13]. In other words, the applicable PSC is 13. It follows that the total revenue of this company increases by 13 to

483 and its profit rises from 12.5 to 25.5. Yet, the company would have been able to operate profitably without the subsidy and would have voluntarily offered a discount of 15% to students. The carrying of students only appears to be loss-making because of the allocation of fixed costs.

So, what is happening here? This result is not unusual in the case of companies which supply customers with different elasticities of demand and incur both variable and fixed costs. By price discriminating and by charging a price that is sufficient to cover the variable costs of supplying the customers with the high elasticity of demand, or the low reservation price, they manage to attract more customers. Ceteris paribus, this strategy is always more profitable.

The implication is that, as we saw above, the PSC is unnecessary. This is because the company would have provided the service to students at a discount and would have remained commercially viable. Once more, its profit *without* compensation is:

R - C = (Ra + Rs) - (VCa + VCs) - FC
= [(10 x 30) + (8.5 x 20)] - [(6 x 30) + (6 + 20)] - 150
= (300 + 170) - (180 + 120) - 150
= 470 - 300 - 150
= 20 [without capital remuneration] and 12.5 [with capital remuneration of 7.5 (= 5% of 150)]

Case II: Bus operators do not offer discounts

In this case the imposition of an obligation to offer discounts forces bus operators to do something they would not otherwise do. Assume as before that a bus can carry 50 passengers. But in this example, a bus company incurs different costs per bus per route per trip. They are as follows:

Variable costs [VC] per passenger = 2
Fixed costs [FC] = 370

The bus company has carried out a market survey and has found that the price that maximises its profits is 10. At this price, it attracts 50 customers. With 50 passengers, its total costs, TC, are 488.5 [= VC + FC + π = (50 x 2) + 370 + (5% of 370)]. Its revenue is 500 [= 50 x 10]. In other words, it has a surplus of revenue over costs of 30 and after the cost of capital is taken into account, it makes a profit of 11.5.

Further assume as before that the reservation price of students is 8.5. Under these conditions, the bus company has no incentive to offer discounts voluntarily because, as the bus runs at capacity, any passenger with a discount can only replace a full-fare passenger. The company gains 8.5 for an extra student passenger but loses 10 for every adult passenger who is displaced, resulting in a loss of revenue of 1.5 per student passenger.

Now the state imposes a public service obligation and, say, 7 students get on the bus and they replace 7 full-fare passengers. The revenue and costs of the company are as follows:

Revenue = Ra + Rs = (43 x 10) + (7 x 8.5) = 430 + 59.5 = 489.5
Costs = Ca + Cs + FC + π = (43 x 2) + (7 x 2) + 370 + 18.5 = 488.5

The company now covers its cost of capital but its extra profit declines from 11.5 to 1 [= 489.5 - 488.5]. It remains viable without any subsidy but it is entitled to compensation as follows:

Cap 1: 7 x (10 - 8.5) = 7 x 1.5 = 10.5
Cap 2: NCs = TCs + π - Rs = [VCs + share of FC] + π - Rs = [14 + (370 x 7/50)] + [5% x (370 x 7/50)] - (7 x 8.5) = 14 + 51.8 + 2.59 - 42.5 = 68.39 - 59.5 = 8.89

Cap 2 is lower and, therefore, binding. The company gets a compensation of 8.89 which raises its revenue to 498.39 [= 489.5 + 8.89] and its extra profit is 9.89 [= 1 + 8.89].

The compensation is again unnecessary because even if extra profits decline as a result of the PSO [from 11.5 to 1], the company is still profitable and able to cover its cost of capital. It can therefore go on operating without having any problem to attract investors. Yet, it also obtains the additional benefit from the fact that the compensation is granted by the state. In other words, part of the income of the company is protected from the vagaries of the market.

What happens if more than seven students get on the bus? Then the company will make losses. For example, if 10 students get on the bus, the revenue and costs will be:

Revenue = Ra + Rs = (40 x 10) + (10 x 8.5) = 400 + 85 = 485
Costs = Ca + Cs + FC + π = (40 x 2) + (10 x 2) + 370 + 18.5 = 488.5

The company now has a shortfall of 3.5 [485 - 488.5]. It can still cover its operating and fixed costs, but not the full cost of capital. In the long-term, investors will pull out their money and invest it somewhere else. But the company needs a mere 3.5, not more.

However, the compensation is as follows:

Cap 1: 10 x (10 - 8.5) = 10 x 1.5 = 15
Cap 2: NCs = TCs + π - Rs = [VCs + share of FC] + π - Rs = [20 + (370 x 10/50)] + [5% x (370 x 10/50)] - (10 x 8.5) = 20 + 74 + 3.7 - 85 = 97.7 - 85 = 12.7

When the number of students is 10, Cap 2 is binding. With compensation of 12.7, the revenue of the company rises to 497.7 [= 485 + 12.7]. It is not as high as the revenue of 500 before the PSO, but still generates excess profit over the cost of capital of 9.2 [= 497.7 - 488.5].

This example demonstrates that where fixed costs can be (legally) allocated between SGEI and non-SGEI activities, compensation has to consider the overall profitability of the SGEI provider in order to avoid excessive subsidisation. All the examples above are based on methods which are fully compliant with current state aid rules. Yet we see that they can result in over-compensation.

Case III: Long-term cost adjustments

The Framework on state aid for PSC requires in point 39 that "in devising the method of compensation, Member States must introduce incentives for the efficient provision of SGEI of a high standard". It then gives examples of different constructions of incentives. The reason for requiring efficiency incentives is that cost structures change over time and if operators receive compensation that covers all their costs, then they may have a weak incentive to contain those costs. By forcing them to achieve efficiencies, the Framework prevents SGEI operators from allowing costs increases.

Indeed the fact that over time cost structures change is very relevant to the examples analysed in this section. Since in the case of student transport the Commission assessed the compensation on the basis of the methodology established in Regulation 1370/2007, it did not require Germany to impose efficiency incentives. But, an interesting question arises. How would a bus operator react to the fact that it can receive compensation? A rational economic agent would seek to maximise the amount of compensation, ceteris paribus, because compensation is just another source of income. The Commission in [73] of its decision asserted that even if undertakings with higher costs would receive a higher amount of compensation, "this does not lead to higher profits but merely reflects higher costs and, therefore, does not lead to distortions of competition contrary to the common interest". But is this assertion correct in the long term?

Let's consider again the first example where the bus company would voluntarily offer discounts. Suppose that the bus company can replace the old bus with a new, bigger, air-conditioned, more automated and fuel-efficient bus. The new buses, with a more efficient layout, can accommodate 57 passengers. Indeed, the objective of the company is to attract adult, full-fare passengers. Variable costs per passenger drop from 6 to 5, while fixed costs increase from 150 to 233. The breakdown of the costs is as follows:

VC = 5/passenger x 57 passengers = 285
FC = 233
Capital remuneration = 5% of 233 = 11.65
Total costs = 529.65

Now the question arises whether the company would make the investment in the absence of any subsidy. Let's consider its financial results. Its revenue [with discounts to students so that it can go on attracting 20 of them] and its costs are:

TR = Ra + Rs = [37 x 10] + [20 x 8.5] = 370 + 170 = 540
TC = VC + FC + capital remuneration = 529.65

Its profit above the cost of capital is only 10.35 [= 540 - 529.65]. The company would not make this investment because before the investment it can achieve a profit of 12.5 [please see case I above].

But this is the financial result without taking into account the possibility of the subsidy for the PSO. When the investment is made, the PSC is as follows:

Cap 1 = 20 x [10 - 8.5] = 30
Cap 2 = VCs + FCs + capital remuneration for capital used for student transport - Rs = [20 x 5] + [233 x 20/57] + [5% of 233 x 20/57] - 170 = 100 + 81.75 + 4.09 - 170 = 185.84 - 170 = 15.84

Cap 2 is the binding cap and the PSC is 15.84. When this is added to the result it would achieve anyway without compensation then the bus company earns 26.19 [= 10.35 + 15.84]. Now, this is a remarkable outcome!

It has just been demonstrated that the subsidy in the form of a PSC induces the company to make an investment that it would not make without it. This investment does not improve the effectiveness of public policy. This is because the same number of students is carried before and after the PSC. In fact, this is a wasteful investment because total costs exceed those before the PSC. The only effect of the PSC is to enable the bus company to extend its services to adult passengers not covered by the SGEI.

Moreover, slightly over 30 per cent of the revenue of the company is under the PSO, which means that it is protected from the vagaries of the market. The company may indeed make the investment in order to obtain the benefits from that protection.

As is well known in economic theory, prices in the short run are determined by marginal rather than total costs. This explains why companies in industries with high fixed costs sometimes charge very low prices. It is because their marginal costs are low too. But this can have a deterrent effect on potential competitors who are contemplating entry into those markets. In our case, the bus company, for example, could respond more aggressively to entry into the non-SEGI segment of the market, knowing that it can reduce its prices temporarily as a large part of fixed costs are covered.

Therefore, the Commission was not correct when it asserted in para.73 of its decision that there would be no distortion of competition. In this case, profits are protected precisely because the bus company exploits the fact that it can receive a public subsidy that partly covers its fixed costs. By undertaking the investment, a larger share of the subsidy goes to cover those additional fixed costs and

the company is able to attract full fare passengers away from its competitors which may not carry students and therefore may not receive the same subsidies.

Of course, the examples developed in this section do not constitute proof. However, they demonstrate that under certain cost and price configurations, a PSC may be unnecessary and may distort competition. These findings suggest that aid grating authorities should be more vigilant about the need of subsidies and their impact on competition. Indeed, it may be advisable to impose efficiency requirements in all cases where they define PSO and grant PSC.

Conclusions

The review of recent case law and decisional practice of the Commission on compensation for the next extra costs of public service obligations reveals that in order to calculate the compensation properly the public authority that imposes the PSO must start with the correct definition of the obligation itself. Correct definition leads to correct identification of eligible costs. The following tasks must be undertaken.

First, despite the discretion of Member States to define SGEI, the services they classify as SGEI must be those which are not provided or satisfactorily provided by the market. Therefore, it is necessary to carry out a market survey or analysis to establish what the market fails to supply or offer at the required level of quality and affordable price.

Secondly, the providers of SGEI must be entrusted with specific tasks. In practice this act of entrustment means that SGEI providers are compelled to offer a well-defined service whose costs cannot be avoided and therefore they can be quantified later on for the purpose of calculating the amount of required compensation.

Thirdly, the parameters of compensation must be determined in advance. Public authorities need to define the method or formula on the basis of which the compensation will eventually be calculated. In practice, this lays down another ceiling on the maximum amount of compensation that can be granted. It also precludes ex post allocation of costs and revenue between different services which may or may not fall within the SGEI scope, even if the allocation is done on the basis of widely acceptable accounting conventions.

Fourthly, Member States need to ensure that the providers of SGEI are not over-compensated. In this respect, Member States are free to bundle together profitable with unprofitable segments of the market or related services, but in all cases they must be in a position to identify the costs and revenue which correspond to the defined SGEI or entrusted PSO.

The last section of the paper has also demonstrated the complexity and pitfalls of correctly calculating the amount of compensation. Public authorities that impose PSO should reasonably expect that SGEI providers will consider the compensation as another source of revenue and will seek to exploit it by exaggerating their costs of by shifting more of their costs to the subsidised SGEI. For this reason, efficiency incentives are indispensable.